SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver ground and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.

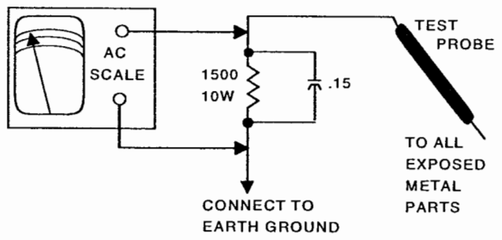
SAFETY CHECKS — FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.



XRAY SHUTDOWN TEST

Momentarily short test point BL901 to ground. The receiver should lose raster and sound. If receiver does not lose raster and sound, the shutdown circuit should be repaired. To resume normal operation, remove AC power for approximately 30 seconds and then turn the receiver on.

The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by SAMS Technical Publishing, LLC as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to SAMS Technical Publishing, LLC by the manufacturers of the specific type of replacement part listed.

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PHOTOFACT® SILVER *Technical Service Data*

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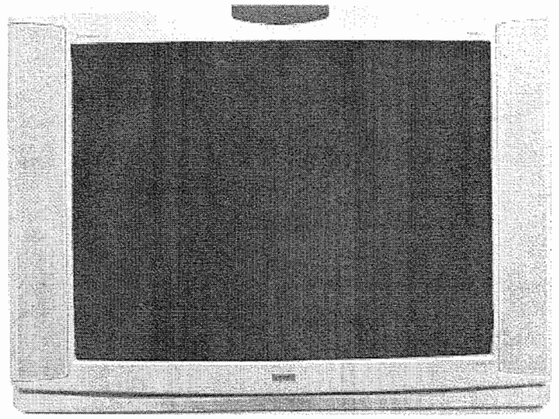
For a Complete List of Manuals, Visit www.samswebsite.com

RCA

Models F27TF700TX01/0YX01 (Chassis ATC113BD1)



Representative Model

Essential coverage for servicing a television receiver...

- **Schematics**
- **Component locations**
- **Parts list**

SAMS™ Technical Publishing LLC

APRIL 2005 SET 5004

5004

SCHEMATIC COMPONENT LOCATION GUIDE

BAV03	B49	CA534	E42	CL20	E19	CR524	C25	CY34	C40	CY574	B58	DR504	A26	IY04	C39	RA505	D45	RI504	C6	RP27	B19	RR522	A27	RV510	E5	RY536	E55	SK14	B25
BAV03	C34	CA535	E42	CL21	E9	CR541	C26	CY35	C36	CY592	B52	DU01	D19	IY06	D34	RA506	D44	RI507	B6	RP28	B19	RR526	B27	RV516	C3	RY537	D24	SK15	B25
BAV03	C34	CA536	C42	CL22	D18	CR563	D24	CY43	B60	CY593	A52	DU02	D19	IY07	D58	RA507	D45	RI508	B1	RP30	C19	RR528	B31	RV518	D5	RY538	D34	SK16	B25
BFA02	B48	CA544	A47	CL23	E12	CR501A	A25	CY500	C50	CY594	D24	DU04	D15	IY08	C58	RA508	D46	RI511	B5	RP31	B19	RR530	C30	RV520	C9	RY539	D35	SP01	B18
BL901	D2	CA545	C47	CL501	E7	CU01	D16	CY501	D58	CY595	D24	DU20	A14	IY09	C51	RA509	D46	RI515	C2	RP32	B17	RR531	B30	RV521	C10	RY540	C34	SP01	B18
BR201	B30	CA546	A45	CL502	E5	CU03	D15	CY502	E58	CY596	C24	DU21	A15	JV544	C10	RA510	D46	RI516	C2	RP331	C22	RR534	A31	RV523	D1	RY541	C35	SP1	A48
BY03	C47	CA547	B45	CL503	E5	CU04	D19	CY503	B51	CY60	A58	DU50	C14	LH10	A2	RA513	E23	RI529	C3	RP332	C22	RR535	A31	RV524	C8	RY542	B52	SP2	B48
BY03	C47	CA552	C46	CL509	E5	CU06	D19	CY505	D33	CY601	C24	DU51	C15	LH11	A2	RA514	E23	RI533	B5	RP333	D22	RR536	B31	RV526	C11	RY543	A51	TA501	E23
BY04	A33	CA553	C46	CL594	D3	CU505	C14	CY507	B35	CY604	C30	DU60	B14	LI01	B3	RA52	C46	RI534	B4	RP340	C23	RR539	A31	RV528	D12	RY544	A55	TA511	B45
BY04	A50	CA57	A47	CL82	E13	CV11	B6	CY508	A50	CY605	C50	DU61	B15	LI03	B5	RA526	B41	RI538	A7	RP350	B22	RR541	A11	RV53	D5	RY545	A56	TI501	B6
BY04	B33	CA58	B47	CL83	E14	CV15	C23	CY509	C35	CY606	C58	DV03	D19	LI06	D23	RA527	B42	RI540	B4	RP360	E21	RR542	A31	RV530	D4	RY546	A55	TI502	B4
BY05	B33	CA60	C46	CL85	E15	CV16	C24	CY51	C60	CY607	D58	DV05	D3	LI07	D23	RA528	B41	RI541	B2	RP361	E21	RR544	D26	RV532	D1	RY547	A57	TI505	A4
BY05	B33	CF02	D6	CL87	D14	CV18	C9	CY511	A35	CY610	E24	DV501	D12	LI08	D23	RA529	B42	RI542	B2	RP363	D22	RR545	D25	RV534	D3	RY548	E52	TI506	A7
BY05	B50	CF04	D8	CL88	E15	CV23	C11	CY513	D51	CY65	B58	DV502	C11	LL01	E7	RA53	C46	RI544	B5	RP38	C20	RR546	D26	RV535	C10	RY549	E52	TL01	E6
BY06	C50	CF05	D7	CL91	E3	CV25	D23	CY514	D51	CY651	D24	DY01	D52	LL01A	A18	RA531	A44	RI550	A3	RP52	C20	RR547	E26	RV539	D2	RY550	B56	TL02	E7
BY06	D57	CF507	E19	CL92	E2	CV26	D5	CY515	D52	CY652	D24	DY02	D52	LL02	E8	RA532	A44	RI551	A3	RP53	D21	RR548	E26	RV541	A12	RY551	B55	TL502	E5
BY06	E57	CF06	E19	CP01	A17	CV27	C11	CY516	D52	CY653	D24	DY03	D51	LL03	D9	RA533	C45	RI552	A4	RP531	C19	RR549	E25	RV542	C12	RY552	C56	TL502A	D3
BY07	D50	CFA01	B47	CP02	A18	CV29	D1	CY517	B50	CY654	E33	DY04	D51	LL04	E7	RA534	C46	RI553	A4	RP54	D20	RR551	D30	RV543	B12	RY553	C55	TL82	E15
CA01	A42	CFA02	A47	CP03	A18	CV30	C24	CY518	D35	CY655	E24	DY05	A51	LL05	D10	RA535	D42	RI560	B5	RP553	D21	RR561	D25	RV546	A12	RY554	C39	TP20	B20
CA02	A43	CFA501	B47	CP04	A18	CV32	C24	CY520	C35	CY698	E51	DY06	B51	LL05	E17	RA536	D42	RL01	D10	RP555	C20	RR563	D26	RV547	C12	RY555	B39	TP22	B19
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CA517	E42	CL12	E9	CR506	B30	CY10	C35	CY567	C58	DR02	D27	IV01	D2	RA12	E23	RFA504	A47	RP06	B18	RR509	E31	RV22	D3	RY528	D50	RY692	C52		
CA518	C44	CL13	D9	CR511	D22	CY12	A36	CY568	C58	DR03	A26	IV02	C23	RA49	C46	RH509	C31	RP15	A17	RR510	E31	RV23	D4	RY529	D52	RY694	E33		
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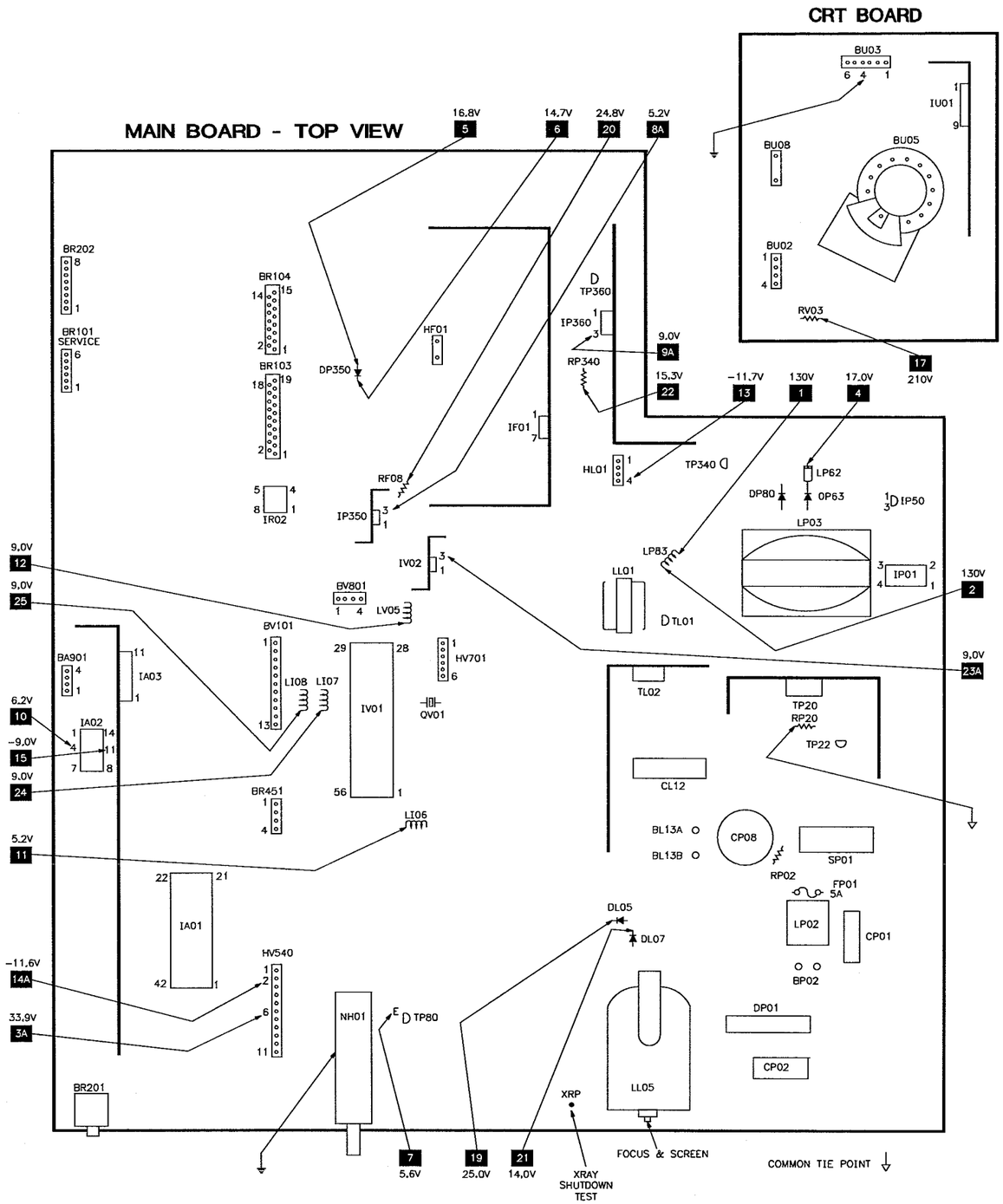
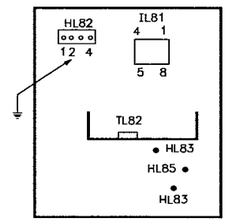
CA522	B47	CL15	E6	CR519	B31	CY19	D35	CY570	A51	DR05	E32	IY01	A37	RA501	D44	RI10	B1	RP20	C20	RR513	C27	RV30	C9	RY531	D52	RY93	E33		
CA527	D44	CL16	E6	CR521	D26	CY21	C36	CY571	B51	DR06	E31	IY01	A54	RA502	D44	RI11	A6	RP21	B19	RR514	E32	RV31	D4	RY532	D52	SK11	B25		
CA528	C42	CL18	E18	CR522	D26	CY27	C52	CY572	B51	DR11	C25	IY03	A59	RA503	D44	RI12	B5	RP23	B19	RR517	D31	RV50	A2	RY533	B50	SK12	B25		
CA533	E44	CL19	D18	CR523	C25	CY28	D36	CY573	C58	DR502	A26	IY04	B39	RA504	D44	RI502	A4	RP25	C19	RR521	D27	RV51	A3	RY535	B50	SK13	B25		

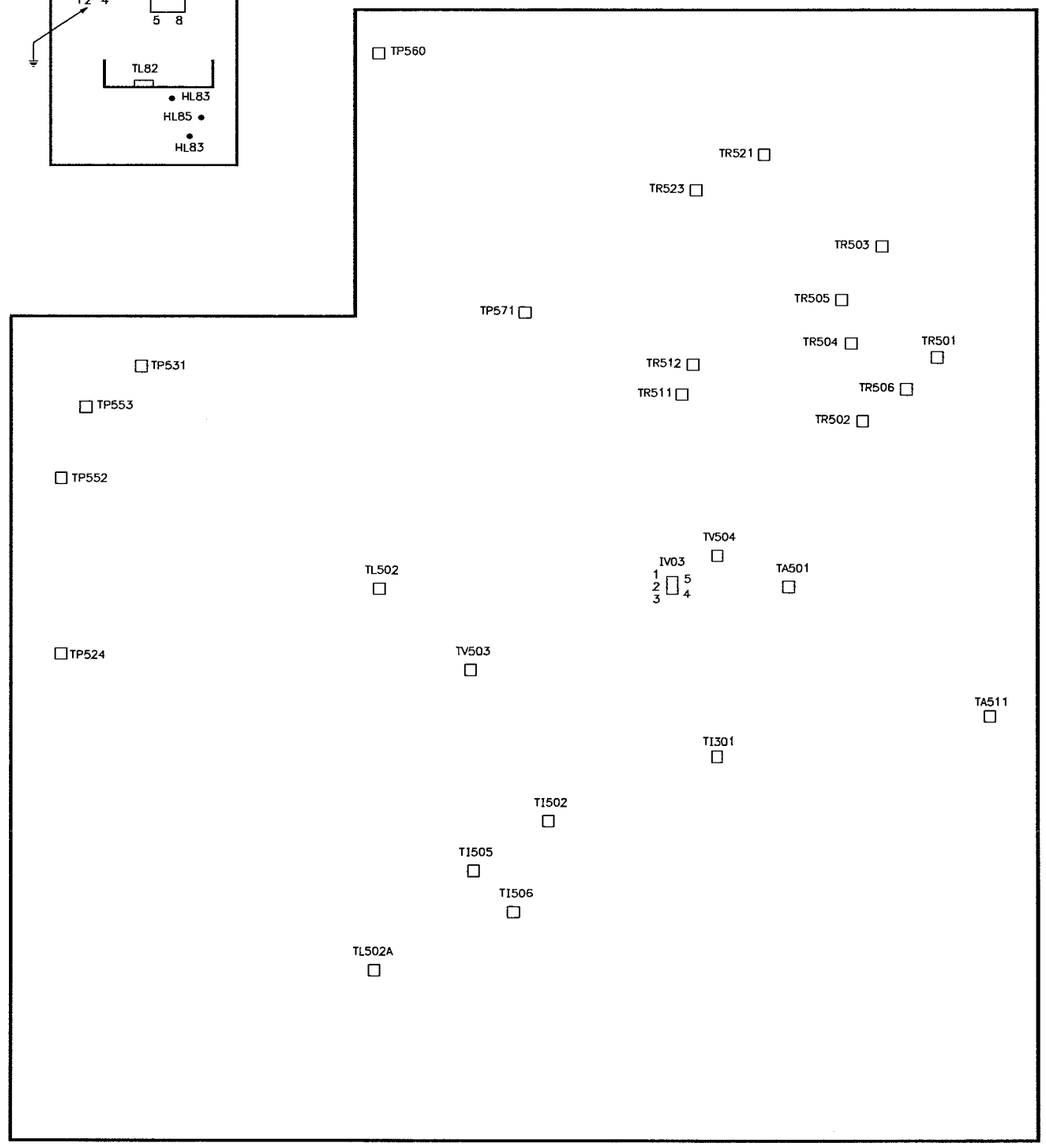
PLACEMENT CHART



PINCUSHION BOARD

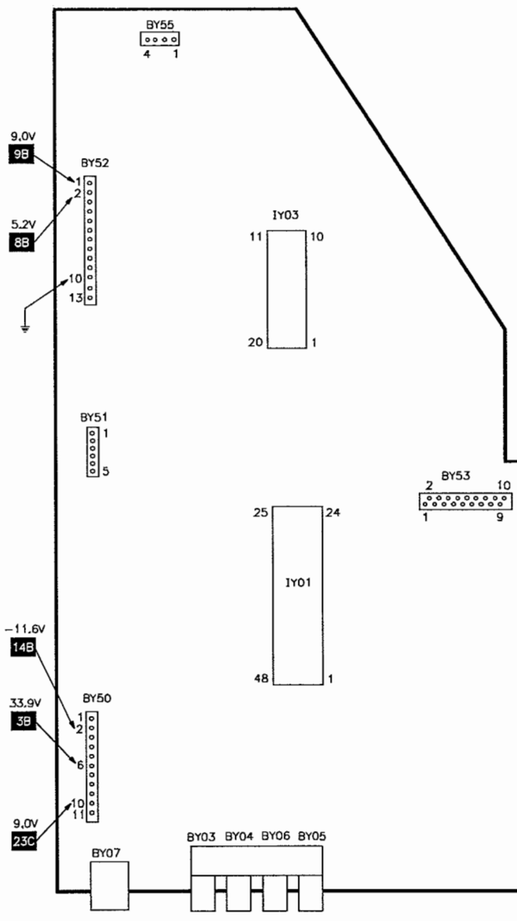


MAIN BOARD - BOTTOM VIEW

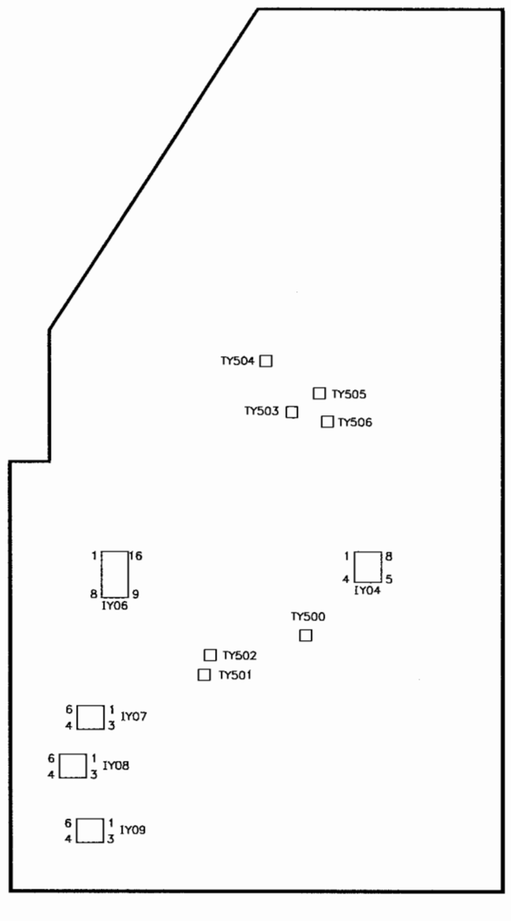


PLACEMENT CHART continued

VIDEO/COMB FILTER BOARD - TOP VIEW



VIDEO/COMB FILTER BOARD - BOTTOM VIEW



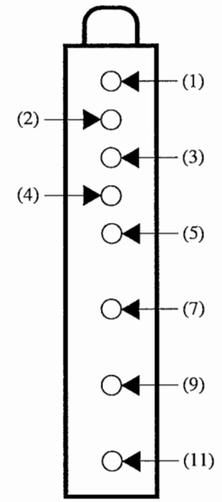
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band
(1) AGC	2.5V	2.5V	3.0V
(2) TU	1.6V	4.5V	5.5V
(3) ADRS	1.3V	1.3V	1.3V
(4) CLOCK	5.1V	5.1V	5.1V
(5) DATA	5.1V	5.1V	5.1V
(7) 5V	5.5V	5.5V	5.5V
(9) +32V	33.9V	33.9V	33.9V
(11) IF	0V	0V	0V

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE



ERROR CODES CHART

Error Code DEC	HEX	Error Location	Condition Indicated
0	00	No error code	-
3	03	12.0V run fault	12.0V source is failing.
8	08	T4 Chip	X-ray protection caused high voltage shutdown.
9	09	T4 Chip (POR)	Power supply problem at (POR) power on reset.
10	0A	F2 PIP module error (POR)	Power supply problem at (POR) power on reset/PIP.
11	0B	Stereo decoder (POR)	Power supply problem at reset/Stereo decoder.
16	10	Run IIC Bus held low	Run IIC clock or data held low.
18	12	Standby IIC Bus held low	Standby IIC clock or data held low.
44	2C	F2 PIP module error	F2PIP fails to acknowledge.
176	B0	Stereo decoder	Stereo decoder fails to acknowledge.
180	B4	Three Line Comb Filter	Comb Filter fails to acknowledge.
144	90	Video Matrix Switch	Video Matrix Switch fails to acknowledge.
196	C4	Main tuner PLL/DAC	Main tuner PLL IC fails to acknowledge.
198	C6	Main tuner PLL/DAC	Main tuner DAC IC fails to acknowledge.

ERROR CODES

If certain failures occur, the matching error codes will be stored in the EEPROM. These error codes will be displayed in parameters 1, 2, and 3. The first failure error code will be stored at parameter 1 and the second failure error code will be stored at parameter 2. Parameter 3 will be updated to display the most recent failure occurred in the chassis. If a failure of a bus IC occurred, the normal acknowledgment checking of that bus will be disabled in the service mode and the address of that IC which failed will be stored in one of the error code parameters. After every repair is done to the chassis it is recommended to check the error code parameters, and reset them back to value 0.

TELEVISION SCHEMATIC

TUNER NOT INCLUDED IN THIS COVERAGE

5V TO TUNER PIN 7 — LH11 — CH55 220µF — CH515 .001 — 7 5.6V

+32V TO TUNER PIN 9 — LH10 — CH507 .001 — 3A 33.9V

IF TO TUNER PIN 11 — RI10 4.7 — CI520 .0022 NPO — QI01 SAW FILTER — RI508 270

TU TO TUNER PIN 2 — NC

ADRS TO TUNER PIN 3 — NC

AGC TO TUNER PIN 1 — CH523 .001 — CI57 4.7µF — RF AGC RANGE 2.5V TO 4.2V — RI516 47K — RI515 12K — 11 5.2V

SEE GEMSTAR 4 P/J26404 PIN 13 PAGE 2H — Rv50 220 2% — CV533 100pF NPO

SEE GEMSTAR 4 P/J26404 PIN 12 PAGE 2H — Rv51 100 — CV534 47pF NPO

CI540 .1 — RI542 120K — RI541 120K — 11 5.2V

PART OF # IV01 VIDEO IF/LUMA,CHROMA/DEFL

PIF IN 1.7V — PIF IN 0V — RF AGC 2.5V — 2.7V AFT OUT — 5.1V SCL — 5.1V SDA — IF DET OUT

APC FILTER 3.4V — IF AGC 3.0V — LOOP FILTER 2.4V — IF GND — IF VCC — IF VCC

IF AGC RANGE 3.0V TO 4.4V — CV507 .0022 NPO — RV516 33K — CV508 .22 — CI551 .47

CI510 .47 — CI509 .0022 NPO — RI529 470 — 11 5.2V — 24 9.0V

TI505 AMP 2.8V 2.2V — RI551 2700 — RI550 5600 — 25 9.0V — 25 9.0V — RI553 150 — RI552 1000 — QI02 4.5MHz FILTER — RI502 1000

CI546 47pF NPO — LI01 — CI503 47pF NPO — RI534 1000

SIF/H CORR IN .05V — DE-EMPH 4.3V — DC NF FILTER 3.9V — VREF 2.4V — AUDIO OUT 3.6V

CI512 100pF NPO — RI560 10K — CI561 .033 — CI12 10µF — CV11 10µF

TI506 AUDIO AMP 3.6V 3.0V — RI11 10 — CI560 33pF NPO — RI538 2200 — 25 9.0V — SEE IA01 PIN 7 PAGE 3C

TI502 AMP 3.8V 3.2V — RI540 3300 — 25 9.0V — RI544 1000 — RI533 270 — CI506 330pF NPO — RI12 270 — LI03 — QI03 4.5MHz TRAP

TI501 AMP 1.5V 2.1V — RI511 1200 — RI507 1000 — 25 9.0V — CI516 39pF NPO — RI504 1500

BV101 BY52 — 13 — SEE IY01 PIN 5 PAGE 3F

2.8V 10µs — 3.0V 10µs — TAKEN WITH BAR SWEEP GENERATOR

SEE TY501 EMITTER PAGE 3F — BY52 BV101 — 9 — CV517 .1 — 47

SEE TY502 EMITTER PAGE 3F — BY52 BV101 — 6 — CV522 .1

1.3V 10µs — .7V 10µs

NC — NC — 40 — 18

CVBS INT IN 2.6V — 1.6V CVBS OUT — 3.1V SVM OUT

PART OF # IV01 VIDEO IF/LUMA,CHROMA/DEFL

CIN 2.4V — YCLAMP FILTER 2.3V — DIG VCC 3.2V — 42 — 48 — 30

CV515 .1 — CV537 .01 — CV36 47µF — RV524 270 — 23A 9.0V

SYNC

PART OF # IV01 VIDEO IF/LUMA,CHROMA/DEFL

FLYBACK .70V — HORIZ AFC FILTER 6.9V — SYNC OUT 2.9V — HVCO ADJ 3.7V — XRAY 0V — HVCC — EHT 1.9V — E/W OUT 3.2V — CW OUT 1.8V — HORIZ OUT 1.8V — VRAMP 4.2V — VERT OUT 4.9V

31 — 35 — 33 — 49 — 32 — 36 — 26 — 29 — 12 — 34 — 37 — 38

CV528 .022 — RV532 2700 — CV29 2.2µF — 23A 9.0V — RV539 22K — 8A 5.2V — SEE TR502 BASE PAGE 2H

CV514 .22 — CV535 .33 — RV22 1000 — DV05 — RV534 150K — 23A 9.0V

TL502A XRAY SWITCH (TL91) — BL901 — RL591 20K — 13.5V — 0V — 13.0V — CL594 .22 — RL599 15K 1% — RV564 150K — CV544 47pF NP0 — RV555 150K

RV556 10K — RV530 1000 — RV23 330 — CV26 .47 63V — RV53 1000 — LV01 — RV552 6800

RV523 2200 — RL526 910 2% — RL03 1000 — RL18 1000 — SEE TR511 EMITTER PAGE 2G — RL19 2200

RL93 39.2K 1% — RL92 27.4K 1% — CL92 .1 63V — RL596 1500 — # DL92 10.0V — # DL90 — CL91 150pF 250V — # RL90 100

SCP03 PRINTED SPARK GAP — RL27 3320 1% — 23A 9.0V

RV31 1500 — RV518 680 2% — CV529 680pF — TL502 HORIZ AMP 1.8V 2.3V — 22 15.3V — RL10 1000 — RL504 1500 — CL502 .1 — CL10 15pF 250V NPO 1% — TL01 HORIZ DRIVE 92.7V

CL509 .0047 — RL09 2400 — DL01 — CL503 470pF NPO — .07V — 1.4V 10µs

TV503 AMP 1.8V 2.4V — BV101 BY52 — 11 — SEE IY03 PIN 13 PAGE 3G — RV510 2200 — 8A 5.2V

CL04 470pF 250V — CL15 .0022 250V — RL06 12K 1W — CL16 .047 250V — RL05 2000 3W — 2 130V

LL01 — LL04 # RL02 47 — CL501 470pF NPO — # TL02 HORIZ OUTPUT 130V — LL02 # CL06 470pF 2kV

RF11 — NC 9 — 1.7V 5ms — 32.6V 5ms — 55.5V 5ms

IF01 VERT OUTPUT — 9.8V — 9.6V GND — 13.1V — 25.4V — 1.6V — 5 — 4 — 2 — 6 — 3

DF02 56.0V — # RF07 1.5 2W — HF01 (YF01) — RF01 360 — CF04 .22 100V

RF03 .51 1W — # RF06 13 1W — # CF02 3300µF — RF04 680 2W — 21 14.0V — 23A 9.0V — 1.4V 5ms — 20 24.8V — DF01 — CF05 220µF — SEE GEMSTAR 4 P/J26403 PIN 5 PAGE 2G — 33.6V 5ms — 242V 10µs

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

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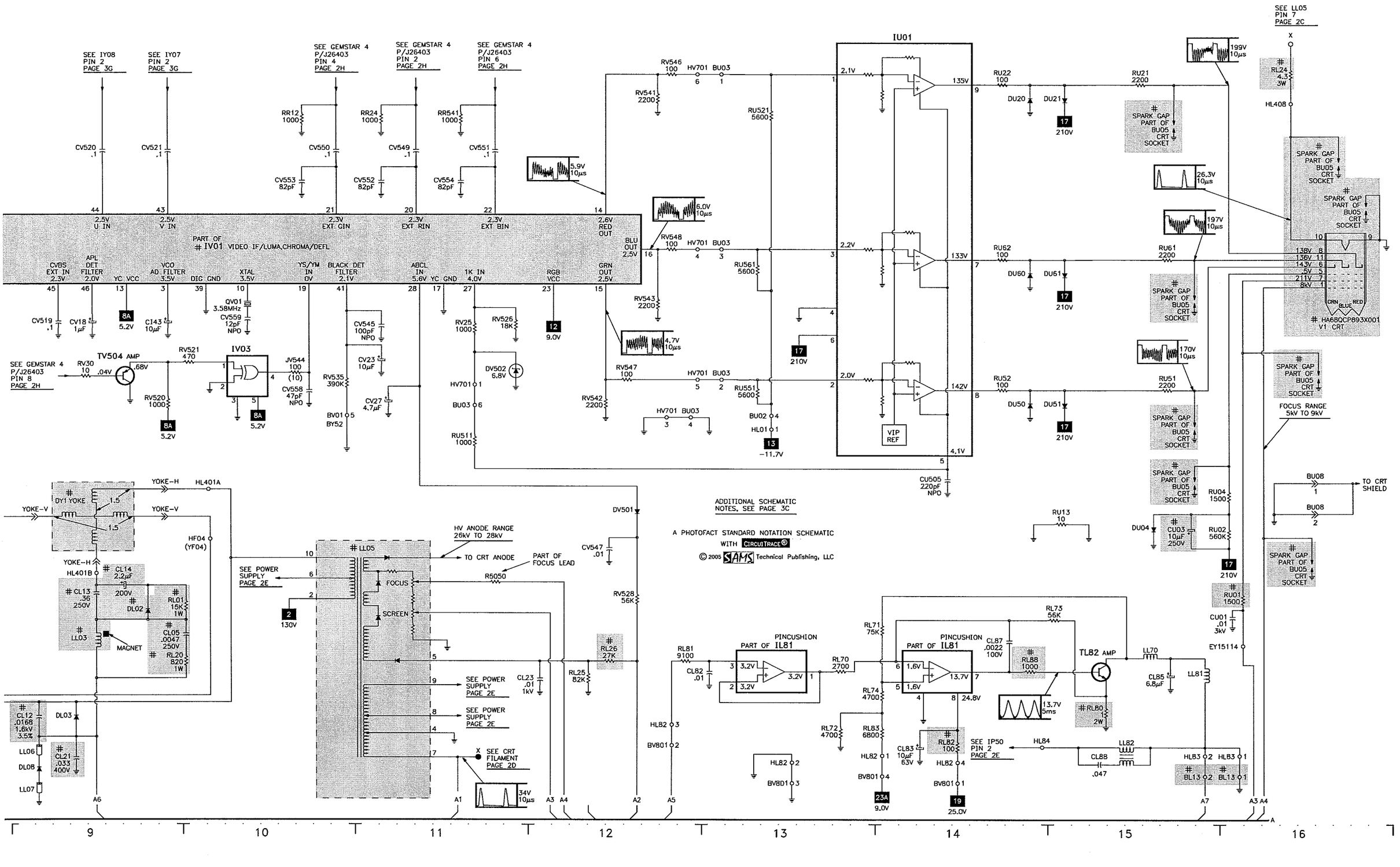
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C

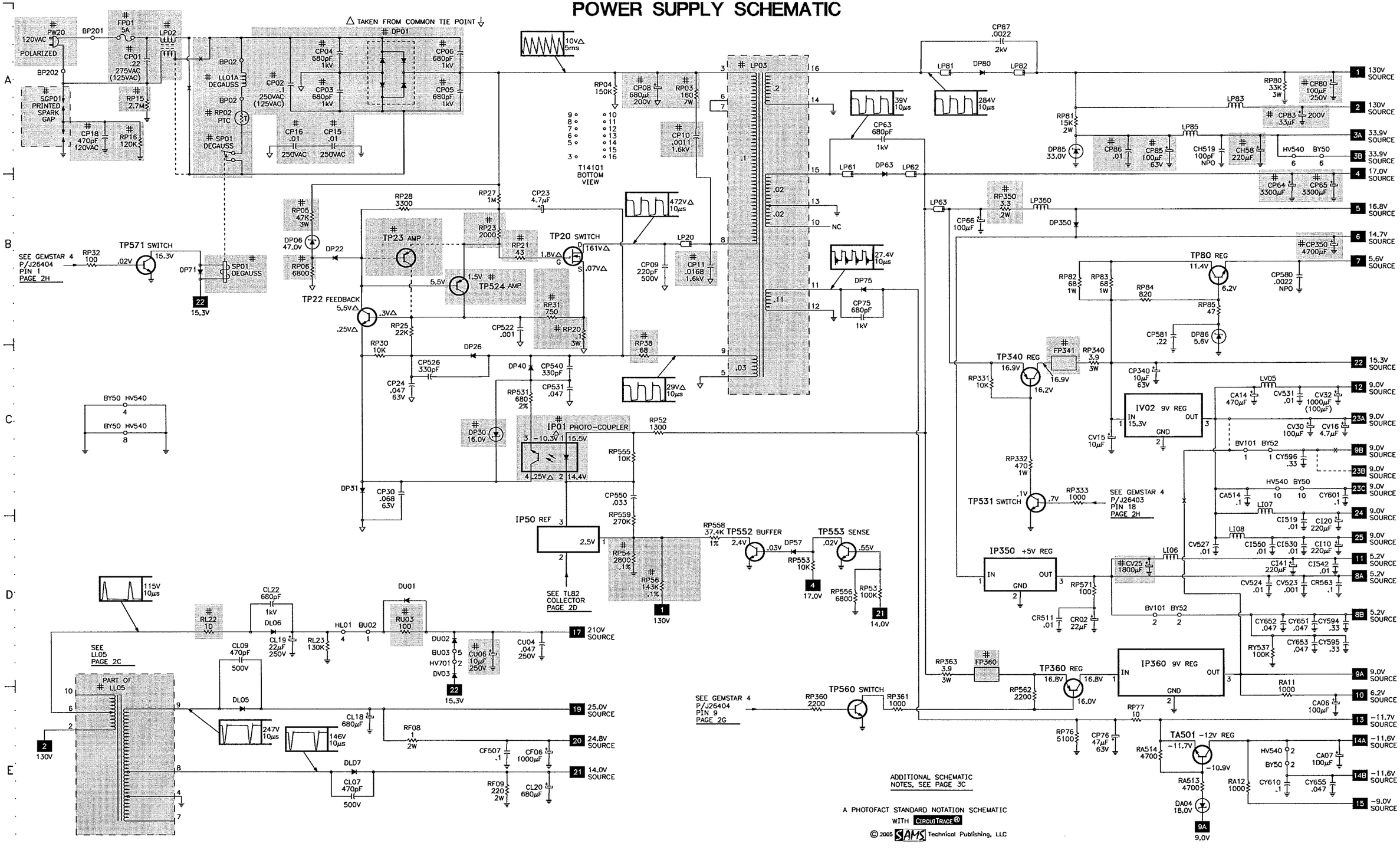
A1 — A2 — A5

TELEVISION SCHEMATIC continued



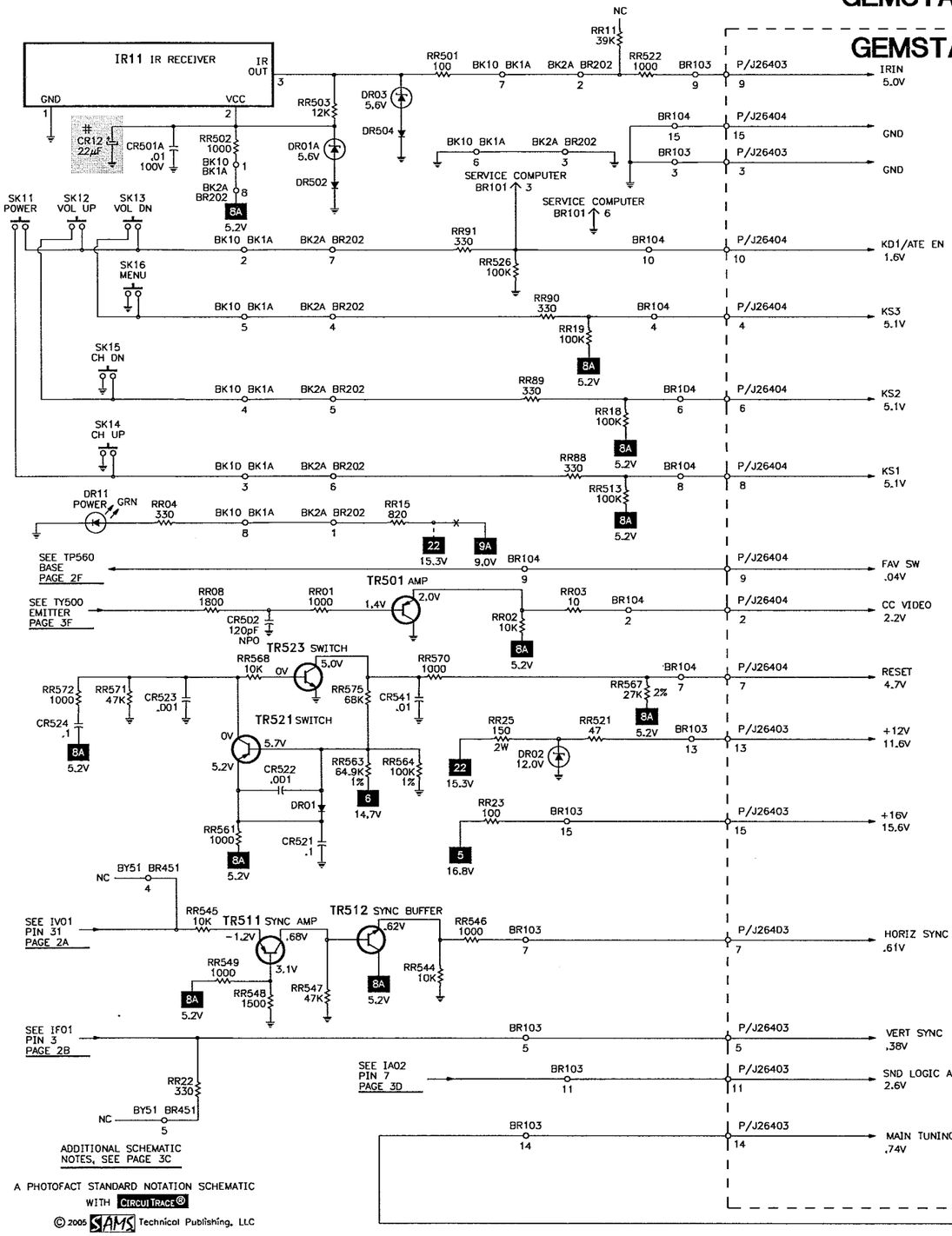
9 10 11 12 13 14 15 16

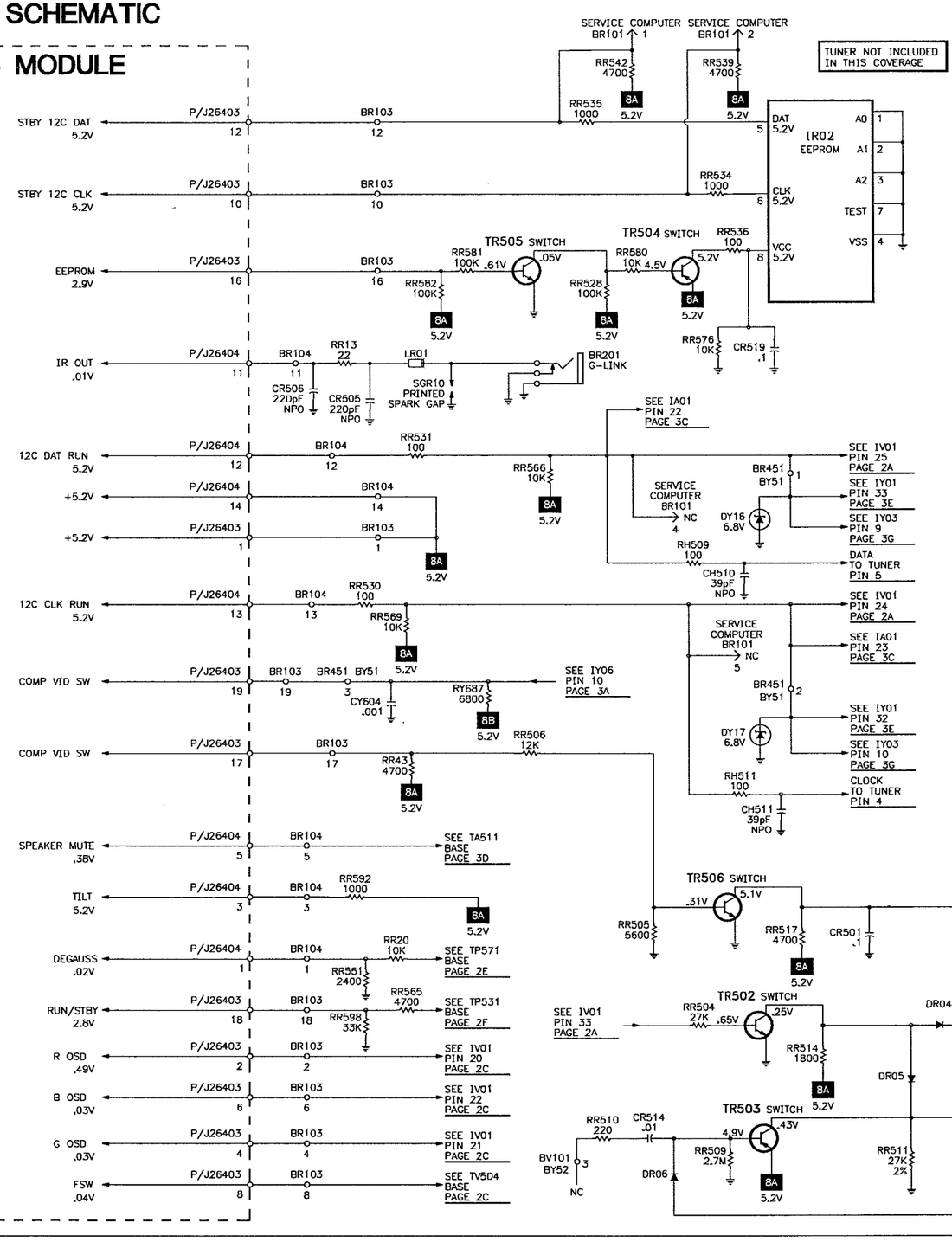
POWER SUPPLY SCHEMATIC



GEMSTAR 4 SCHEMATIC

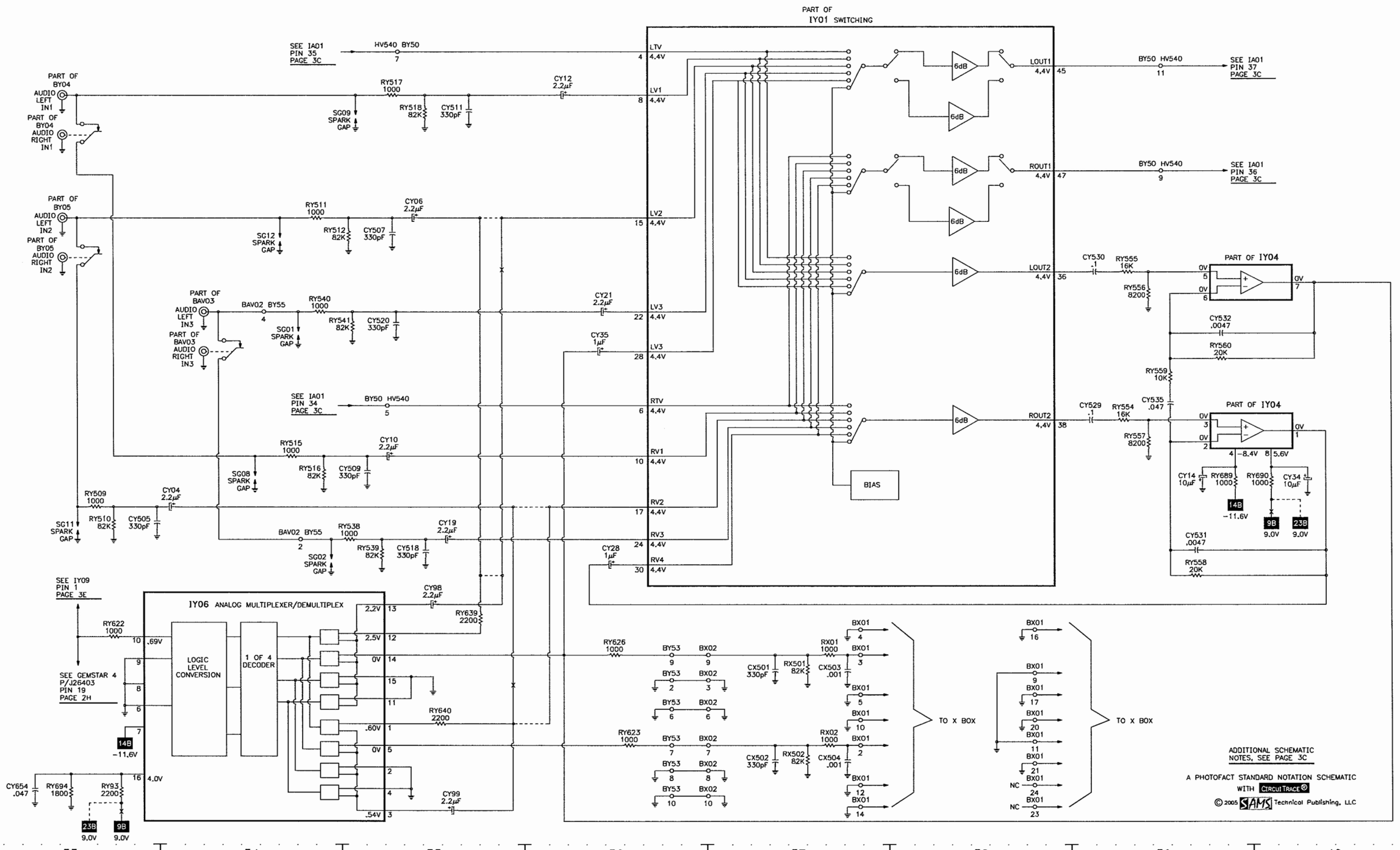
GEMSTAR 4 MODULE




TUNER NOT INCLUDED IN THIS COVERAGE
IR02 EEPROM
TR505 SWITCH
TR504 SWITCH
BR201 G-LINK
SGR10 PRINTED SPARK GAP
TR506 SWITCH
TR502 SWITCH
TR503 SWITCH
SERVICE COMPUTER BR101
SEE IA01 PIN 22 PAGE 3C
SEE IV01 PIN 25 PAGE 2A
SEE IY01 PIN 33 PAGE 3E
SEE IY03 PIN 9 PAGE 3G
DATA TO TUNER PIN 5
SEE IV01 PIN 24 PAGE 2A
SEE IA01 PIN 23 PAGE 3C
SEE IY01 PIN 32 PAGE 3E
SEE IY03 PIN 10 PAGE 3G
CLOCK TO TUNER PIN 4
SEE IY06 PIN 10 PAGE 3A
SEE TA511 BASE PAGE 3D
SEE TP571 BASE PAGE 2E
SEE TP531 BASE PAGE 2F
SEE IV01 PIN 20 PAGE 2C
SEE IV01 PIN 22 PAGE 2C
SEE IV01 PIN 21 PAGE 2C
SEE TV5D4 BASE PAGE 2C

RCA MODELS F27TF700TX01/0YX01 (CHASSIS ATC113BD1)

AUDIO SWITCHING SCHEMATIC



ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C

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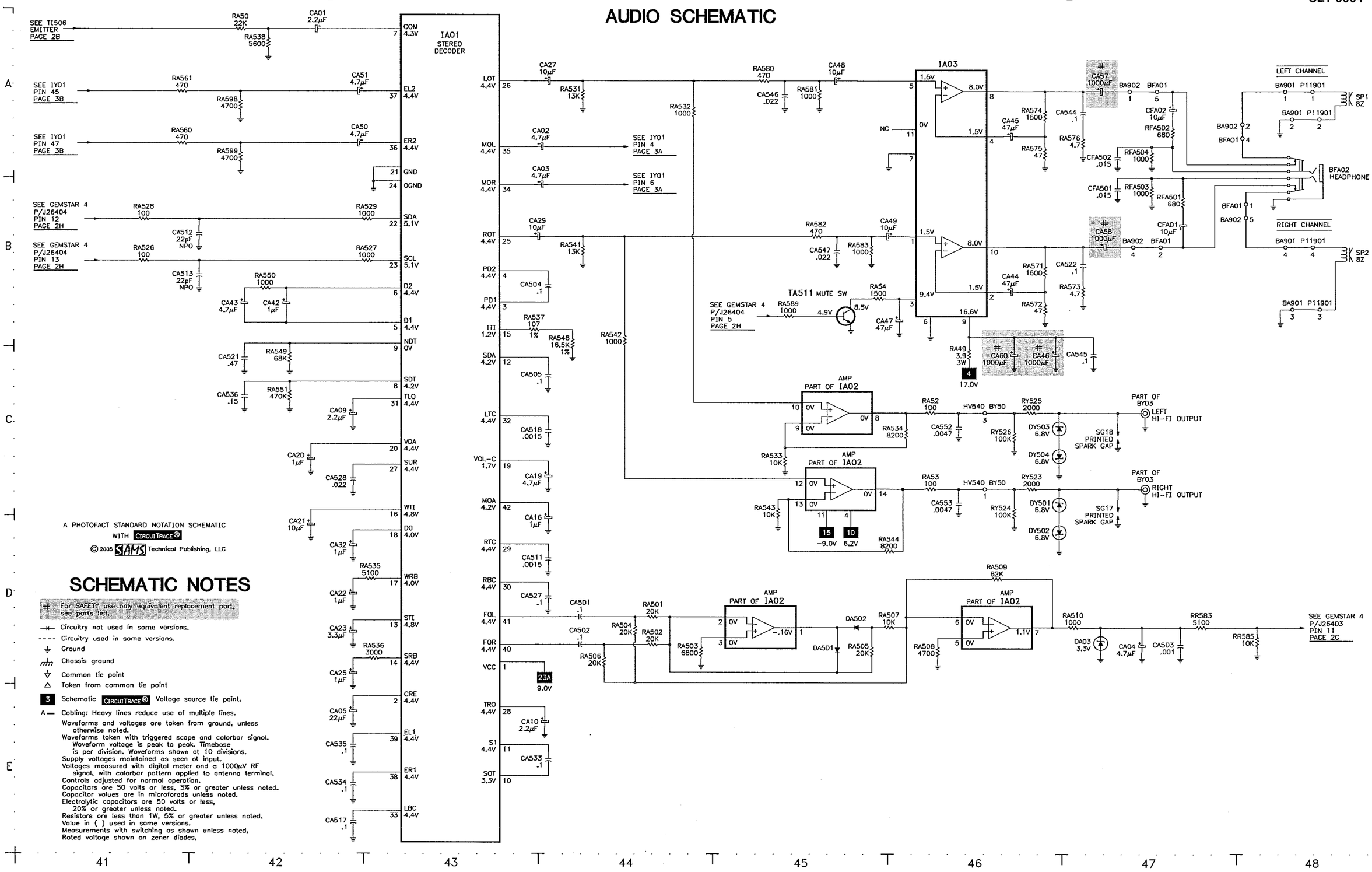
AUDIO SCHEMATIC



A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

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SCHEMATIC NOTES

For SAFETY use only equivalent replacement part. see parts list.

—×— Circuitry not used in some versions.

- - - - Circuitry used in some versions.

Ground

Chassis ground

Common tie point

Token from common tie point

3 Schematic CIRCUITRACE® Voltage source tie point.

A— Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless otherwise noted.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Capacitor values are in microfarads unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are less than 1W, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown unless noted.
Noted voltage shown on zener diodes.

VIDEO SWITCHING / COMB FILTER SCHEMATIC

E F

SEE TJ501 EMITTER PAGE 2B

PART OF BY04 VIDEO IN1 — SG10 SPARK GAP — RY513 220 — CY508 .33 — RY514 75 — DY05 6.8V

PART OF BY05 VIDEO IN2 — SG13 SPARK GAP — RY507 220 — CY503 .33 — RY508 75 — DY06 6.8V

PART OF BAV03 VIDEO IN3 — BAV02/BY55 1 — SG1 SPARK GAP — SG03 SPARK GAP — RY533 220 — CY517 .33 — RY535 75 — DY10 6.8V

BAV02/BY55 3

XBOX — BX02 5 — BY53 5 — RY629 100 — CY605 .33 — RY630 75 — DY13 6.8V

PART OF BY06 COMPOSITE VIDEO IN — RY501 220 — CY500 .33 — RY502 75 — SG16 PRINTED SPARK GAP — DY09 6.8V

BY07 SVHS

SG07 PRINTED SPARK GAP — RY520 75 — RY519 220 — CY513 .47 — DY04 6.8V

SG06 PRINTED SPARK GAP — RY522 75 — RY521 220 — CY514 .47 — DY03 6.8V

RY527 33K — RY528 47K — 8B 5.2V

RY576 1000

RY543 100 — CY522 .47

RY564 100 — CY569 47pF NPO — LY07 — CY570 47pF NPO — RY566 390 — RY573 560 — RY670 470 — CY593 .33

TY503 AMP 2.4V 4.2V 1.8V — TY506 AMP 4.2V 3.1V — 8B 5.2V 8B 5.2V

RY542 100 — CY524 .47

RY565 100 — CY571 47pF NPO — LY08 — CY572 47pF NPO — RY563 390 — RY572 560 — RY574 10 — RY692 560 — CY592 .1

TY504 AMP 2.6V 4.5V 2.0V — TY505 AMP 4.5V 4.0V 5.1V — 8B 5.2V 8B 5.2V

CY27 10µF

IY09

4 2.1V — 6 2.0V — CLAMP — CLAMP — BIAS — 1.3V 2 — .5V — 5 — 3 — 1 — 8B 5.2V

CY97 47µF

23C 9.0V

PART OF IY01 SWITCHING

TV	5	4.2V	
V1	7	3.9V	
YIN1	42	4.7V	
V2	14	3.9V	
V3	21	3.9V	
V4	29	3.9V	
CIN1	44	4.4V	
BIAS	43	4.4V	
Y2	16	3.8V	
VCC	40		
Y1	9	3.9V	
Y1	23	3.9V	
C1	11	4.4V	
C2	18	4.4V	
C3	25	4.4V	
S2-1	12	0V	
SCL	32	5.1V	
SDA	33	5.1V	
S-1	13		
S-2	20		

6dB — VOUT1 4.2V 46 — TY500 AMP 2.1V 1.5V — RY544 1000 — RY546 1000 — RY545 1000 — BY52 BV101 4 — SEE TR501 BASE PAGE 2G

6dB — YOUT1 4.0V 1 — TY501 AMP 2.0V 2.6V — RY551 1000 — RY648 1000 — RY550 1000 — SEE IV01 PIN 47 PAGE 2B

TRAP 3.6V 48 NC

GND 2

6dB — COUT1 4.2V 3 — TY502 AMP 2.3V 3.0V — RY553 820 — RY647 1000 — RY552 1000 — SEE IV01 PIN 42 PAGE 2B

6dB — VOUT2 4.2V 39 NC

6dB — YOUT2 3.5V 37 NC

6dB — COUT2 4.3V 35 NC

BIAS

LOGIC

DC OUT	4.4V	34	NC
S2-2	0V	19	
S2-3	.03V	26	
S2-3		27	
ADR		31	
MUTE		41	

RY536 1000

RY500 47K — 8B 5.2V — RY92 220 2%

SEE GEMSTAR 4 P/J26404 PIN 13 PAGE 2H — RY548 1000 — CY525 10pF NPO 1%

SEE GEMSTAR 4 P/J26404 PIN 12 PAGE 2H — RY549 1000 — CY526 10pF NPO 1%

CY698 .01

SEE IY06 PIN 10 PAGE 3A — RY621 3300

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3C

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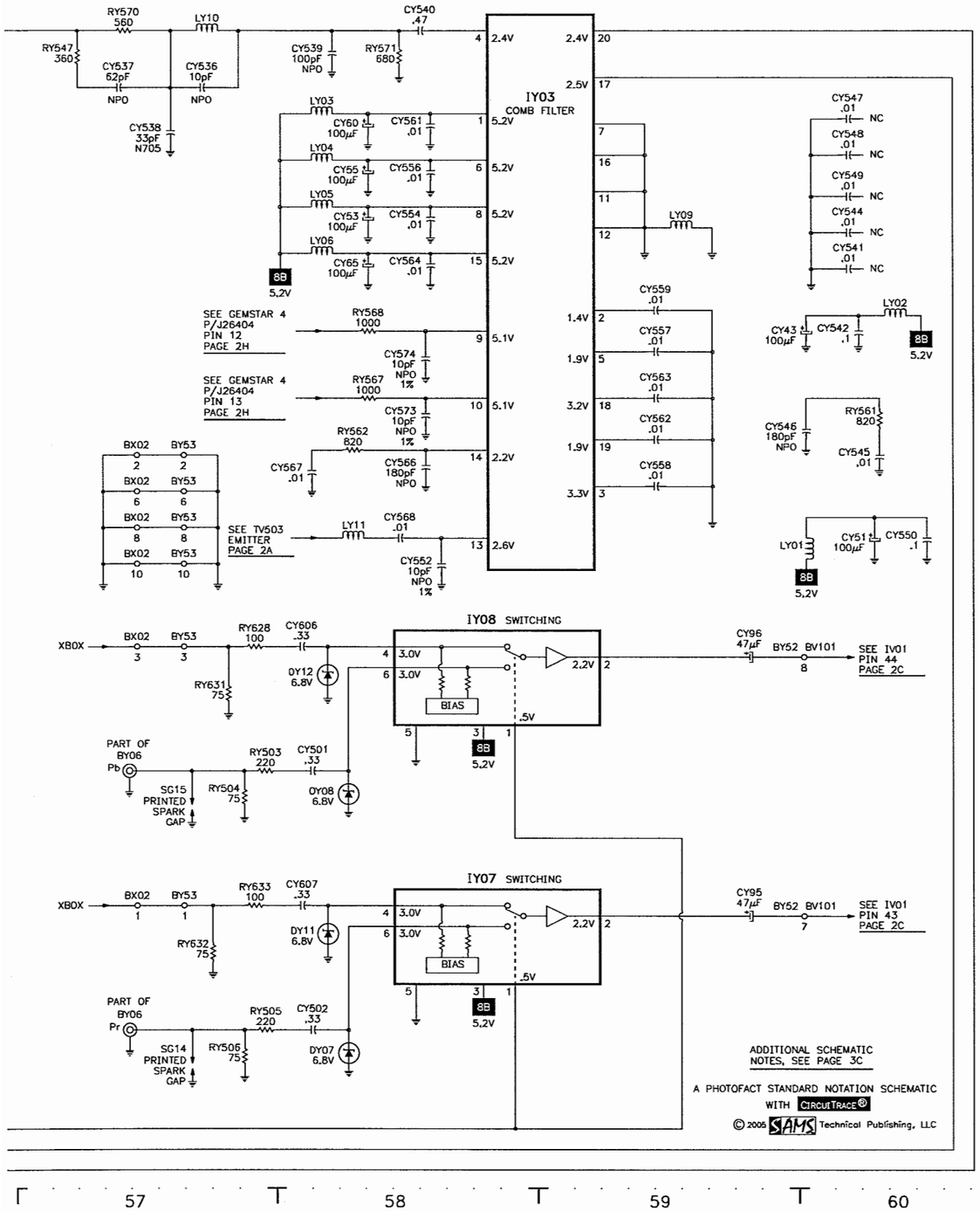
49 50 51 52 53 54 55 56

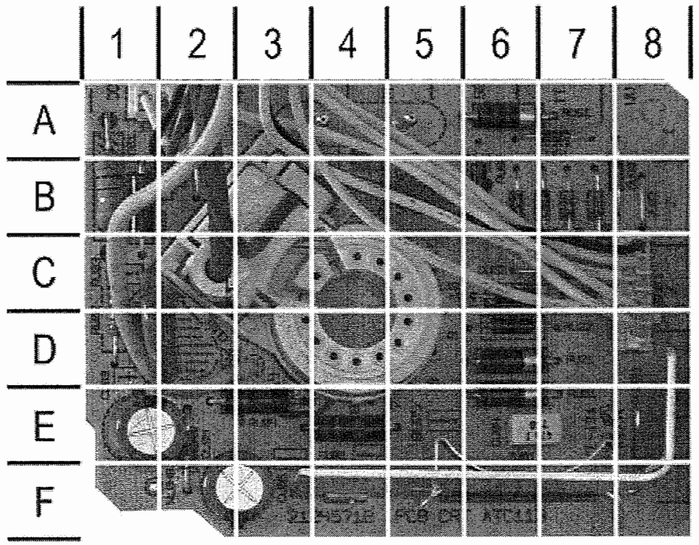
SET 5004 Page 3

G
COMB FILTER SCHEMATIC continued



57 58 59 60

CRT BOARD



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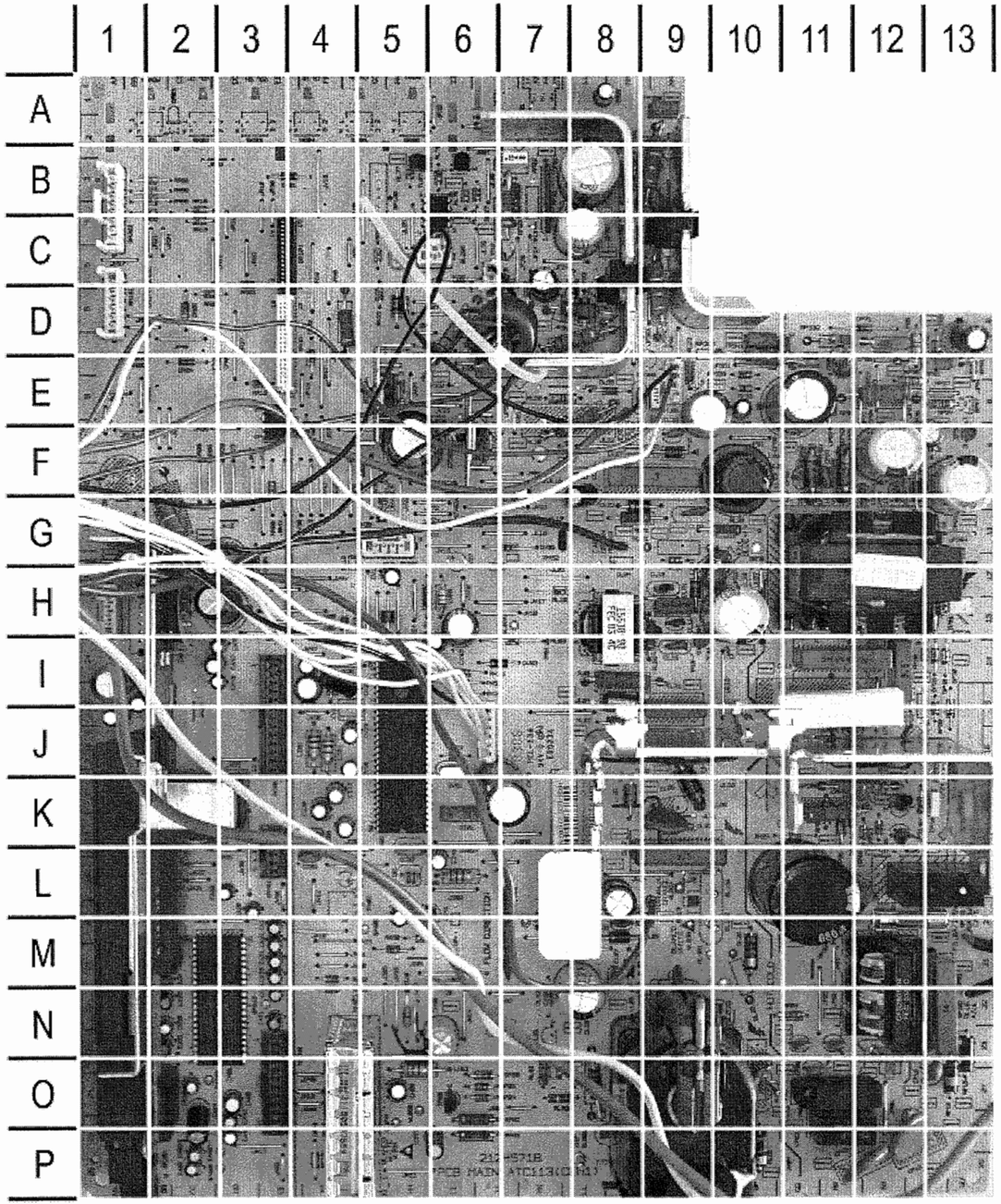
CRT BOARD, GRIDTRACE LOCATION GUIDE

BU02	A2	DU21	B6	RU51	E6
BU03	D8	DU50	B7	RU52	C6
BU05	C4	DU51	B6	RU61	A6
BU08	A4	DU60	B7	RU62	B6
CU01	D1	DU61	A7	RU511*	E6
CU03	E1	IU01	F7	RU521*	F7
CU04	E6	RU01	E4	RU551*	F7
CU06	F3	RU02	D1	RU561*	F8
CU505*	E6	RU03	B1		
DU01	B1	RU04	E3	* Located on	
DU02	C7	RU13	B1	bottom of board.	
DU04	E2	RU21	D6		
DU20	B7	RU22	D6		

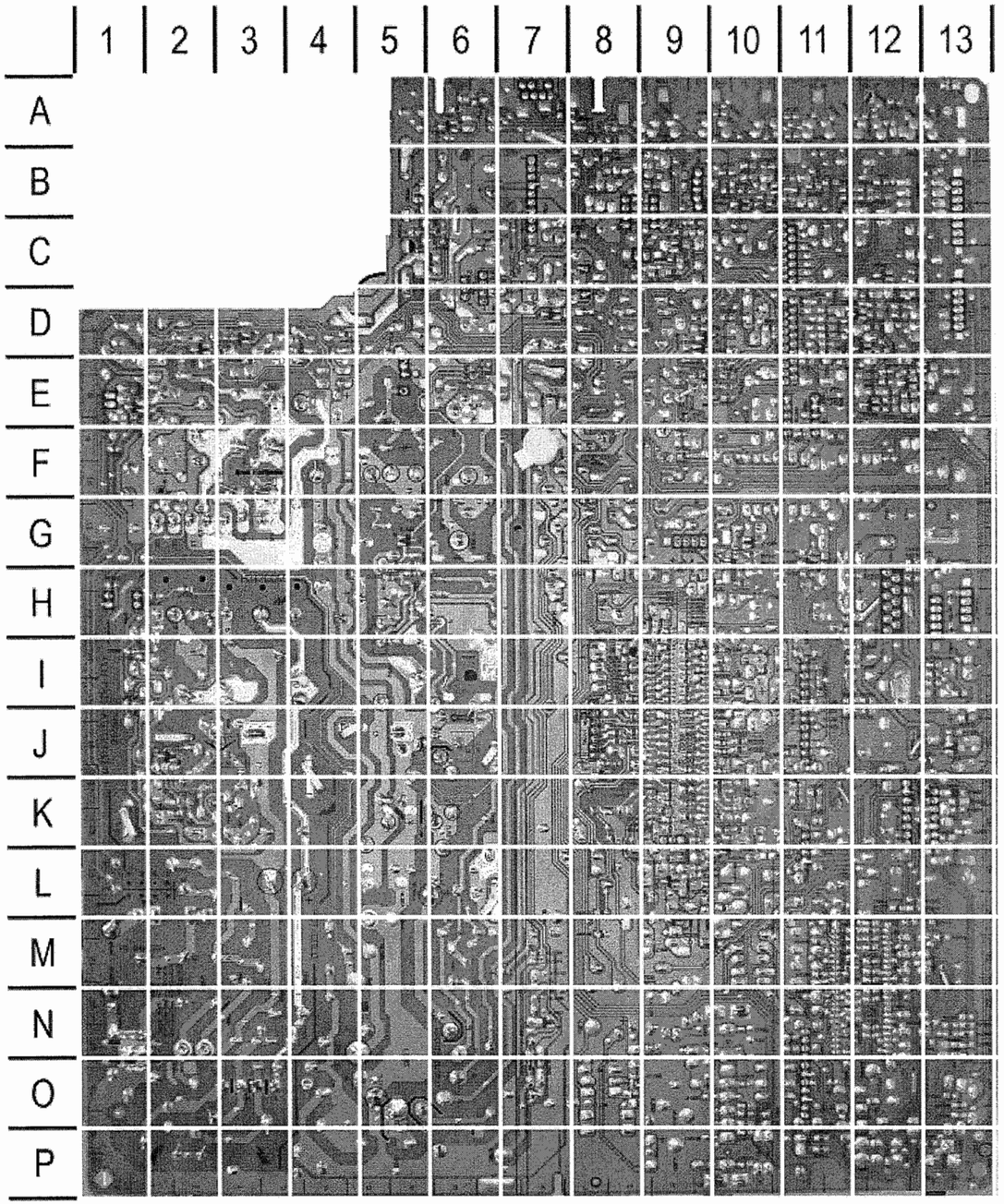
MAIN BOARD - TOP VIEW



MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

BA901	H1	CI57	P6	CV16	H5	IA01	N3	RF03	B7	RP80	E12
BR101	D1	CL04	H9	CV18	J4	IA02	K1	RF04	D8	RP81	E13
BR103	E3	CL05	G9	CV23	J4	IA03	H2	RF06	D7	RP82	O6
BR104	C3	CL06	K9	CV25	K7	IF01	C8	RF07	B7	RP83	P6
BR201	P1	CL07	M8	CV26	J4	IP01	H13	RF08	D6	RP84	O6
BR202	C1	CL09	M8	CV27	I1	IP50	F13	RF09	D8	RP85	O6
BR451	K3	CL10	H9	CV29	I4	IP350	F6	RF11	C7	RP331	D11
BV101	I3	CL12	L9	CV30	I4	IP360	C9	RI10	N5	RP332	D11
BV801	G5	CL13	F9	CV32	H6	IR02	E7	RI11	M5	RP333	E10
CA01	N3	CL14	G8	CV36	I4	IV01	K5	RI12	L4	RP340	D9
CA02	P2	CL15	I9	DA03	K1	IV02	F6	RL01	G8	RP350	E10
CA03	P2	CL16	H9	DA04	G3	LH10	O5	RL02	J8	RP360	A8
CA04	K1	CL18	N8	DF01	D8	LH11	O5	RL03	I7	RP361	A8
CA05	O3	CL19	E9	DF02	D8	LI01	L5	RL05	I8	RP363	B9
CA06	K1	CL20	L8	DL01	H9	LI03	K4	RL06	H9	RR01	D1
CA09	N2	CL21	J9	DL02	G8	LI06	L6	RL09	G9	RR02	D2
CA10	M2	CL22	F9	DL03	K9	LI07	J4	RL10	H7	RR03	C3
CA14	P2	CL23	O10	DL05	M8	LI08	J4	RL18	D7	RR08	F3
CA16	O2	CL91	E9	DL06	F9	LL01	H8	RL19	D6	RR11	A6
CA19	M1	CL92	E9	DL07	M8	LL02	K8	RL20	G10	RR12	E3
CA20	L3	CP01	N13	DL08	K9	LL03	F10	RL22	O8	RR13	O1
CA21	M3	CP02	P11	DL90	E8	LL04	I8	RL23	E9	RR15	A8
CA22	M3	CP03	N11	DL92	N7	LL05	O9	RL24	E8	RR18	B2
CA23	N3	CP04	O12	DP01	O11	LL06	K9	RL25	P10	RR19	C2
CA25	M3	CP05	O11	DP06	K11	LL07	J9	RL26	M10	RR20	D6
CA27	M2	CP06	O11	DP22	K12	LP02	N12	RL27	H5	RR22	G5
CA29	M2	CP08	L11	DP26	I13	LP03	H12	RL90	E7	RR23	D5
CA32	L3	CP09	J12	DP30	I13	LP20	J12	RL92	O7	RR24	F4
CA42	O3	CP10	I12	DP31	K12	LP61	F11	RL93	O7	RR25	D4
CA43	P3	CP11	I11	DP40	I13	LP62	F11	RP02	L12	RR43	C5
CA44	J1	CP15	O12	DP57	E12	LP63	E11	RP03	J12	RR88	B2
CA45	I1	CP16	O12	DP63	F11	LP81	F11	RP04	N11	RR89	B2
CA46	H2	CP18	O13	DP71	D12	LP82	F11	RP05	K11	RR90	B2
CA47	I2	CP23	L12	DP75	F12	LP83	H10	RP06	K11	RR91	B2
CA48	I2	CP24	J13	DP80	F11	LP85	D12	RP15	O13	RV22	H4
CA49	I2	CP30	K13	DP85	D13	LP350	D6	RP16	O13	RV23	J6
CA50	M2	CP63	F12	DP86	O6	LR01	O1	RP20	K12	RV25	I6
CA51	M2	CP64	F12	DP350	D5	LV01	H5	RP21	K12	RV30	F4
CA57	I1	CP65	F13	DR01	B4	LV05	H6	RP23	K12	RV31	H4
CA58	G1	CP66	E11	DR02	E4	NH01	O4	RP25	J12	RV50	I6
CA60	G2	CP75	F12	DR04	E2	QI01	K6	RP27	K11	RV51	I6
CF02	B8	CP76	F13	DR05	E3	QI02	L5	RP28	K12	RV53	I4
CF04	B7	CP80	E11	DR06	D2	QI03	L4	RP30	J13	SP01	L13
CF05	C7	CP83	H10	DV03	I7	QV01	J6	RP31	J12	TL01	H9
CF06	C8	CP85	D13	DV05	G7	RA11	K1	RP32	C6	TL02	J9
CH55	O5	CP86	D12	FP01	M12	RA12	K12	RP38	I12	TP20	J12
CH58	N6	CP87	F11	FP341	D10	RA49	G2	RP52	G12	TP22	K12
CI10	M5	CP340	E10	FP360	A9	RA50	M5	RP53	E10	TP80	O6
CI12	K4	CP350	F5	HF01	C7	RA52	M4	RP54	E13	TP340	D11
CI20	K4	CR02	A8	HL01	E9	RA53	M4	RP56	E12	TP360	B9
CI41	L5	CV11	K4	HV540	N3	RA54	J1	RP76	F13		
CI43	L6	CV15	F7	HV701	J6	RF01	C7	RP77	D10		

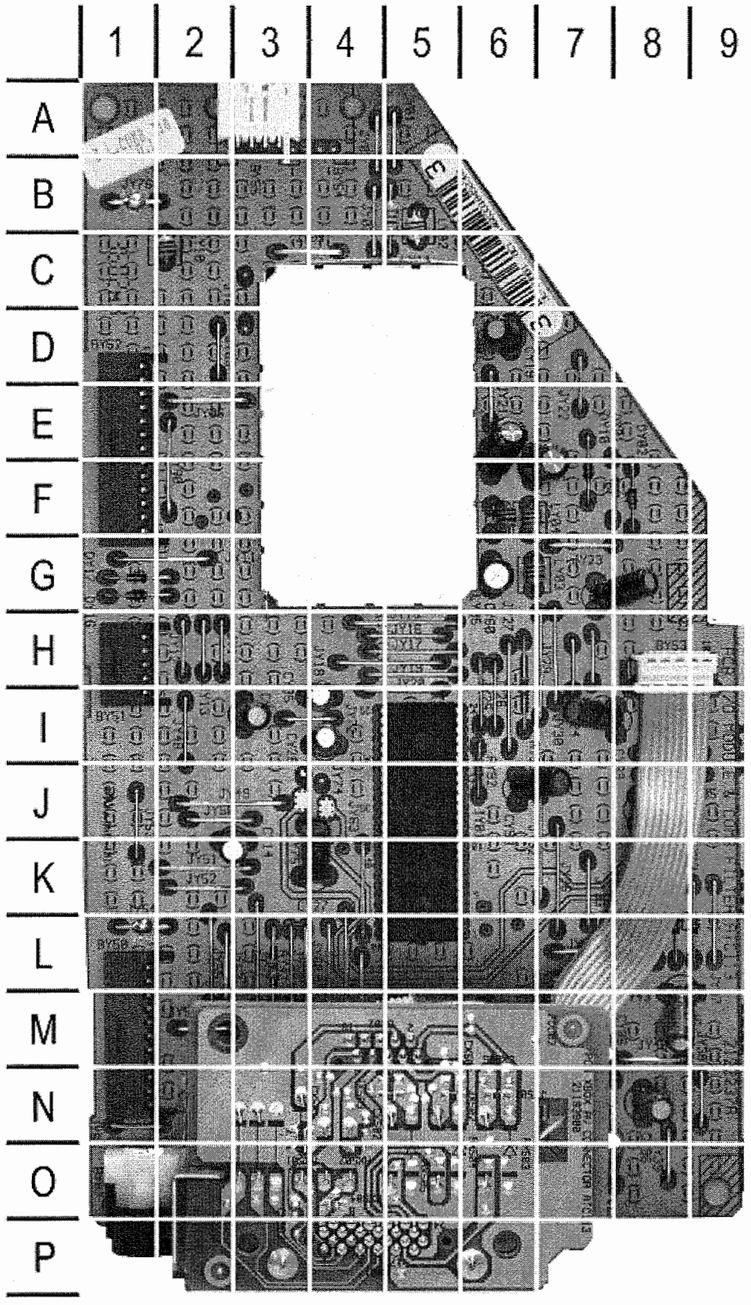
MAIN BOARD - BOTTOM VIEW



MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

CA501	N13	CL502	H5	CV552	I9	RA575	I13	RR511	C12	RV526	I9
CA502	N13	CL503	H5	CV553	I9	RA576	I13	RR513	B12	RV528	H9
CA503	K13	CL509	G5	CV554	I9	RA580	J12	RR514	E12	RV530	I10
CA504	N11	CL594	M7	CV558	J8	RA581	J12	RR517	E12	RV532	I10
CA505	M11	CP522	K2	CV559	J8	RA582	I12	RR521	D10	RV534	I9
CA511	M12	CP526	I1	DA501	K13	RA583	I12	RR522	E10	RV535	J10
CA512	M12	CP531	H2	DA502	K13	RA589	J13	RR526	C11	RV539	E12
CA513	M12	CP540	I1	DV501	I8	RA598	N13	RR528	D12	RV541	J9
CA514	N11	CP550	F1	DV502	J8	RA599	N13	RR530	B11	RV542	J9
CA517	N12	CP580	O8	IV03	G10	RH509	O10	RR531	B11	RV543	J9
CA518	N12	CP581	O8	JV544	H10	RH511	O10	RR534	E11	RV546	J8
CA521	N11	CR501	E12	RA501	N13	RI502	K9	RR535	D11	RV547	J8
CA522	H12	CR502	E13	RA502	N13	RI504	K11	RR536	F11	RV548	J8
CA527	M12	CR505	O13	RA503	K13	RI507	J11	RR539	D12	RV552	H9
CA528	M12	CR506	O13	RA504	N13	RI508	K8	RR541	E11	RV555	H9
CA533	N11	CR511	A6	RA505	K13	RI511	K11	RR542	D12	RV556	I9
CA534	N12	CR514	D12	RA506	N13	RI515	L8	RR544	E10	RV564	H9
CA535	N12	CR519	F11	RA507	K13	RI516	M8	RR545	D9	RY628	L1
CA536	N11	CR521	B10	RA508	K13	RI529	K10	RR546	E10	TA501	G11
CA544	I13	CR522	B10	RA509	L13	RI533	L9	RR547	E10	TA511	J13
CA545	H12	CR523	B11	RA510	K13	RI534	L9	RR548	E9	TI501	J11
CA546	H12	CR524	B10	RA513	H11	RI538	M9	RR549	D9	TI502	L10
CA547	I12	CR541	C10	RA514	G11	RI540	K9	RR551	F9	TI505	L9
CA552	N11	CR563	F9	RA526	M12	RI541	K9	RR561	B10	TI506	M9
CA553	N11	CV507	J9	RA527	M12	RI542	K9	RR563	B10	TL502	G5
CF507	C6	CV508	J9	RA528	M12	RI544	K9	RR564	B11	TL502A	N7
CH507	O10	CV514	K9	RA529	M12	RI550	L9	RR565	D11	TP524	J2
CH510	O10	CV515	J9	RA531	M12	RI551	L9	RR566	B12	TP531	D3
CH511	P10	CV517	J10	RA532	M12	RI552	L9	RR567	C9	TP552	E1
CH515	O10	CV519	J9	RA533	L12	RI553	L9	RR568	B10	TP553	D2
CH519	N9	CV520	J10	RA534	K12	RI560	K10	RR569	B12	TP560	A6
CH523	P10	CV521	J10	RA535	M11	RL504	G5	RR570	C10	TP571	D7
CI503	L9	CV522	J10	RA536	M11	RL526	H9	RR571	B11	TR501	E13
CI506	K9	CV523	G10	RA537	M11	RL591	O7	RR572	B11	TR502	E12
CI509	K10	CV524	J9	RA538	L9	RL596	N7	RR575	B10	TR503	C12
CI510	K10	CV527	I9	RA541	M13	RL599	M7	RR576	F11	TR504	D12
CI512	K10	CV528	I9	RA542	M13	RP531	H2	RR580	D12	TR505	D12
CI516	K11	CV529	H10	RA543	L12	RP553	E3	RR581	D11	TR506	E12
CI519	K9	CV531	I9	RA544	L12	RP555	H1	RR582	D12	TR511	D9
CI520	M9	CV533	I9	RA548	M11	RP556	D3	RR583	D10	TR512	D9
CI530	L9	CV534	I9	RA549	N11	RP558	E1	RR585	E10	TR521	B10
CI540	K9	CV535	I9	RA550	O11	RP559	E1	RR598	D11	TR523	B10
CI542	K9	CV537	I9	RA551	N11	RP562	B5	RV510	I11	TV503	J8
CI546	L9	CV544	I9	RA560	P11	RP571	A6	RV516	J9	TV504	G10
CI550	J11	CV545	J9	RA561	P11	RR504	E12	RV518	I9		
CI551	K9	CV547	H9	RA571	H12	RR505	E13	RV520	G10		
CI560	M9	CV549	J8	RA572	J13	RR506	E12	RV521	G10		
CI561	K10	CV550	I8	RA573	G12	RR509	C12	RV523	I10		
CL501	J6	CV551	I8	RA574	I13	RR510	D12	RV524	I10		

VIDEO / COMB FILTER BOARD



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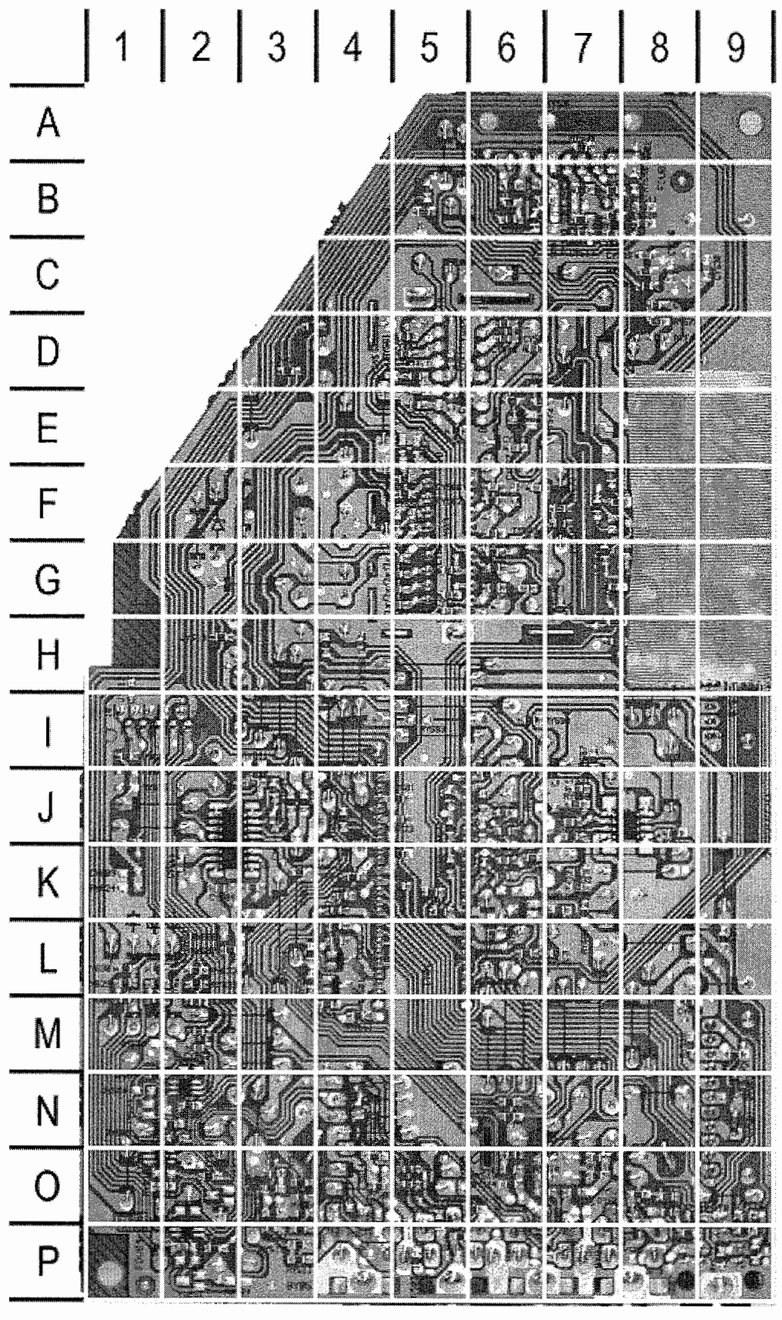
VIDEO / COMB FILTER BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

BY03	O3	CY99	I7
BY04	O4	DY01	F8
BY05	O6	DY02	F8
BY06	O4	DY03	N4
BY07	O1	DY04	O3
BY50	L1	DY05	N3
BY51	H1	DY06	N7
BY52	D1	DY07	N6
BY53	H8	DY08	N6
BY55	A3	DY09	M6
CY04	M7	DY10	F7
CY06	M7	DY11	L8
CY10	M3	DY12	L8
CY12	M3	DY13	L9
CY14	K2	DY16	G1
CY19	D6	DY17	G1
CY21	G8	IY01	K5
CY27	J4	IY03	F4
CY28	I4	LY01	C3
CY34	I3	LY02	B5
CY35	I4	LY03	G7
CY43	C5	LY04	F6
CY51	D3	LY05	F6
CY53	E6	LY06	E4
CY55	F7	LY07	G4
CY60	G6	LY08	F3
CY65	F4	LY09	E3
CY95	M8	LY10	C2
CY96	N8	LY11	B5
CY97	N7	RY92	J6
CY98	J7	RY93	H6



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VIDEO / COMB FILTER BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

CY500	O5	CY594	M2	RY539	B7
CY501	O5	CY595	E9	RY540	B8
CY502	N4	CY596	D8	RY541	B8
CY503	O3	CY601	L6	RY542	J5
CY505	O3	CY604	K2	RY544	L6
CY507	P3	CY605	M1	RY545	K7
CY508	O6	CY606	M1	RY546	L7
CY509	O7	CY607	M2	RY547	D8
CY511	O7	CY610	M8	RY548	J6
CY513	O8	CY651	P2	RY549	J6
CY514	O9	CY652	O2	RY550	L3
CY515	B6	CY653	M2	RY551	M4
CY516	B6	CY654	J3	RY552	L3
CY517	B7	CY655	K2	RY553	L4
CY518	B7	DY501	O8	RY554	K6
CY520	B8	DY502	P8	RY555	K6
CY522	K4	DY503	N9	RY556	J8
CY523	J5	DY504	N9	RY557	I7
CY524	J5	IY04	J8	RY558	J7
CY525	K6	IY06	J2	RY559	J7
CY526	J6	IY07	N2	RY560	K7
CY529	K6	IY08	O2	RY561	D5
CY530	K6	IY09	P2	RY562	F6
CY531	J7	RY500	H4	RY563	E6
CY532	K7	RY501	P5	RY564	G6
CY535	J7	RY502	P5	RY565	G6
CY536	C8	RY503	O6	RY566	G6
CY537	C8	RY504	P6	RY567	F5
CY538	C9	RY505	O4	RY568	F5
CY539	C8	RY506	O4	RY570	D8
CY540	C8	RY507	O3	RY571	C8
CY541	D5	RY508	O3	RY572	E6
CY542	D5	RY509	O3	RY573	F7
CY544	D5	RY510	P3	RY574	F7
CY545	D5	RY511	P3	RY576	K5
CY546	E5	RY512	P3	RY621	N2
CY547	D6	RY513	O6	RY622	K3
CY548	D6	RY514	O6	RY623	J1
CY549	D6	RY515	O7	RY626	I1
CY550	D6	RY516	O7	RY629	L1
CY552	E5	RY517	O7	RY630	L1
CY554	F5	RY518	O7	RY631	L1
CY556	F5	RY519	P8	RY632	L2
CY557	G5	RY520	P8	RY633	L2
CY558	G5	RY521	P9	RY639	K3
CY559	G5	RY522	P9	RY640	J3
CY561	G5	RY523	O8	RY647	L4
CY562	G5	RY524	O8	RY648	M4
CY563	G5	RY525	M9	RY670	H7
CY564	F6	RY526	M8	RY687	L2
CY566	F6	RY527	P9	RY689	K7
CY567	F6	RY528	L9	RY690	I6
CY568	E5	RY529	B6	RY692	F7
CY569	G5	RY530	B6	RY694	J3
CY570	F6	RY531	B6	TY500	K6
CY571	G5	RY532	B6	TY501	L4
CY572	E6	RY533	B7	TY502	L4
CY573	E5	RY535	B7	TY503	F6
CY574	E5	RY536	B5	TY504	E6
CY592	G7	RY537	B5	TY505	F7
CY593	H7	RY538	B7	TY506	F7

MISCELLANEOUS ADJUSTMENTS

NOTE: All procedures require an antenna connected and power applied to the set.

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, contrast, and color to minimum. Connect a high voltage probe to the CRT anode. High voltage should measure 26kV to 28kV.

SUB BRIGHTNESS

NOTE: Turn the TV On for at least 15 minutes for warm up before doing the Sub Brightness adjustment.

Tune in a gray scale bar staircase signal. Access the customer control main menu. Select item # 2 "Picture Quality", select item # 2 "Picture Preset", then select item # 2 "Normal Lighting". This will reset the customer controls. Access the service menu and adjust the Sub Brightness (parameter # 12) so that the first bar on the gray scale signal is black and the rest of the gray scale bars are clearly distinguishable from each other.

SUB CONTRAST

Tune in a gray scale bar staircase signal. Access the customer control main menu. Select item # 2 "Picture Quality", select item # 2 "Picture Preset", then select item # 2 "Normal Lighting". This will reset the customer controls. Access the service menu and adjust the Sub Contrast (parameter # 11) to mid range. Connect an oscilloscope to pin 6 of the CRT socket to measure the Green voltage peak to peak and adjust the Sub Contrast (parameter # 11) to have 109V between the Blanking and the white level. Repeat the process with the scope connected to pin 8 of the CRT socket for the Red and to pin 11 of the CRT socket for the Blue.

COLOR TEMPERATURE

NOTE: Turn the TV On for at least 15 minutes for warm up before doing the color temperature adjustment.

Tune in a gray scale bar staircase signal. Access the customer control main menu. Select item # 2 "Picture Quality", select item # 2 "Picture Preset", then select item # 2 "Normal Lighting". This will reset the customer controls. Perform the Screen Adjustment procedure. Access the service menu. Adjust RG Drive Gain (parameter # 09) value to 42 and adjust Blue Drive Gain (parameter # 10) value to 42. Adjust Red cutoff (parameter # 06) value to 10. Adjust the Green cutoff value (parameter # 07) and the Blue cutoff value (parameter # 08) for the best gray tone on the first few bars of the signal. The Red cutoff value (parameter # 06) may be readjusted to produce the best picture quality. Adjust the Green Gain (parameter # 09) and the Blue Gain (parameter # 10) for the best white level on the last bars of the signal. Check the low light to high light gray scale tracking. Repeat the procedure, if necessary, to obtain the best performance. Tune in a regular channel and adjust brightness for picture in normal room lighting.

PIP CONTRAST & BRIGHTNESS

Apply a composite video signal to Video 1 Input (BY04). Select Video 1 as the main picture source. Turn on PIP and select Video 1 as the PIP picture. Connect an oscilloscope to pin 11 of the CRT socket to measure the Blue voltage peak to peak. Access the service menu. Adjust the PIP Brightness level (parameter # 41) so that the PIP picture would have the same brightness as the main picture. Adjust the PIP Contrast level (parameter # 34) so that the PIP Contrast would be the same as the main picture contrast.

PIP TINT & SATURATION (COMPOSITE)

Access the customer control main menu. Select item # 2 "Picture Quality", select item # 2 "Picture Preset", then select item # 2 "Normal Lighting". This will reset the customer controls. Select "Auto Color" and then select "Off", to turn the auto color Off. Access the service menu. Apply a color bar signal to Video 1 Input (BY04). Select Video 1 as the main picture source. Turn on PIP and select Video 1 as the PIP picture. Connect an oscilloscope to pin 11 of the CRT socket to measure the Blue voltage peak to peak. Access the service menu. Adjust the PIP CVBS Fine Tint level (parameter # 36) to 128. Adjust the PIP CVBS Coarse Tint level (parameter # 35) to set the amplitude of the Cyan and Magenta bars to be as close as possible to the main picture Cyan and Magenta bars. Adjust the PIP CVBS Saturation level (parameter # 37) to set the amplitude of the Blue bar to be as close as possible to the main picture Blue bar at the Blue cathode, pin 11 of the CRT. Adjust the PIP CVBS Fine Tint level (parameter # 36) to set the amplitude of the Cyan and Magenta bars to be as close as possible to the main picture Cyan and Magenta bars. Repeat the process until no more adjustments needed.

PIP TINT & SATURATION (S-VIDEO)

Access the customer control main menu. Select item # 2 "Picture Quality", select item # 2 "Picture Preset", then select item # 2 "Normal Lighting". This will reset the customer controls. Select "Auto Color" and then select "Off", to turn the auto color Off. Access the service menu. Apply a color bar signal to the S-Video Input (BY07). Select Video 1 as the main picture source. Turn on PIP and select Video 1 as the PIP picture. Connect an oscilloscope to pin 11 of the CRT socket to measure the Blue voltage peak to peak. Access the service menu. Adjust the PIP S-Video Fine Tint level (parameter # 39) to 128. Adjust the PIP S-Video Coarse Tint level (parameter # 38) to set the amplitude of the Cyan and Magenta bars to be as close as possible to the main picture Cyan and Magenta bars. Adjust the PIP S-Video Saturation level (parameter # 40) to set the amplitude of the Blue bar to be as close as possible to the main picture Blue bar. at the Blue cathode, pin 11 of the CRT. Adjust the PIP S-Video Fine Tint level (parameter # 39) to set the amplitude of the Cyan and Magenta bars to be as close as possible to the main picture Cyan and Magenta bars. Repeat the process until no more adjustments needed.

TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR570
Generators		Capacitance Analyzer	LC102
RGB	CM2125	CRT Analyzer	CR7000
Multiburst Signal	VG91	AC Leakage Tester	PR570
Color Bar	VG91	Inductance Analyzer	LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	Field Strength Meter	SL753
Frequency Meter	SC3100	Transistor Tester	TF46
Hi-Voltage Probe	HP200	Horizontal Analyzer	HA-2500
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

SERVICE MENU

The following adjustment procedures are accessed thru a service menu. To access the service menu, turn the receiver on, press the menu button on the receiver and hold it down while pressing the power button. While holding down the menu button, release the power button and press the volume + button. Release the menu button. The screen will display one line menu, on the left the parameter P0, and on the right the value of that parameter V0. Adjustments are made by selecting the proper parameter and changing the value of that parameter. To change the parameter number use channel up and down buttons on the remote control. To adjust the current value of that parameter use volume + and - buttons on the remote control. To access and change any of the adjustments, the proper parameter pass number must be entered. This information is listed at the beginning of the alignment. When these parameters are modified, the T-Chip and the corresponding EEPROM are updated. All service adjustments are bus controlled, except focus and screen.

NOTE: In order to adjust the RF AGC, audio or video levels, tuner, PIP, or stereo circuits, the Chipper Check hardware and software must be used. This can be purchased from Thomson Electronics. Before making any changes to any of the values, make a record of the On Set values.

Service Adjustment Parameters

Parameter No.	Parameter Name	On Set Value	Value Range	Comment
00	Pass number for service adjustment.	Must set to 76	-	May not advance until value is set to 76.
01	Error Code 1	0	0 - 255	Displays the first error detected. Set to 0 before exiting. See Error Codes Chart.
02	Error Code 2	0	0 - 255	Displays the second error detected. Set to 0 before exiting. See Error Codes Chart.
03	Error Code 3	0	0 - 255	Displays the last error detected. Set to 0 before exiting. See Error Codes Chart.
04	Main RF AGC	30	0 - 63	Tune in a crosshatch pattern, adjust to center the pattern on the screen.
05	AKB OK Status	3	-	This data is for reading only. Do not change.
06	Red Cut-off	14	0 - 31	-
07	Green Cut-off	18	0 - 31	-
08	Blue Cut-off	26	0 - 31	-
09	RG Drive Gain	55	0 - 127	-
10	B Drive Gain	52	0 - 127	-
11	Sub Contrast	11	0 - 15	-
12	Sub Brightness	15	0 - 33	-
13	Sub Color	25	0 - 33	-
14	Sub Tint	16	0 - 33	-
15	Horizontal Position	19	0 - 31	Tune in a crosshatch pattern, adjust to center horizontally.
16	Vertical Phase	3	0 - 7	Tune in a crosshatch pattern, adjust to center vertically.
17	Vertical Size	79	0 - 127	Tune in a crosshatch pattern, adjust for slight vertical overscan.
18	Vertical Centering	25	0 - 63	Tune in a crosshatch pattern, adjust to center vertically (Fine Adjustment).
19	Vertical Linearity	10	0 - 15	Tune in a crosshatch pattern, adjust vertical linearity.
20	VS Correction	10	0 - 15	Tune in a crosshatch pattern, adjust so the boxes at top and bottom have equal size.
21	Horizontal Size	17	0 - 31	Tune in a crosshatch pattern, adjust for slight horizontal overscan.
22	EW Parabola Correction	31	0 - 63	Tune in a crosshatch pattern, adjust for straight vertical lines at the left and the right.
23	EW Trapezium Correction	35	0 - 63	Tune in a crosshatch pattern, adjust for parallel straight vertical lines at the sides.
24	EW Correction Top	13	0 - 31	Tune in a crosshatch pattern, adjust for straight vertical lines at the top corners.
25	EW Correction Bottom	19	0 - 31	Tune in a crosshatch pattern, adjust for straight vertical lines at the bottom corners.
26	RF AGC for 2nd Tuner	16	0 - 31	Activates PIP window. (for sets with PIP.)
27	Audio Input Level	24	0 - 63	-
28	Audio Stereo VCO	43	0 - 63	-
29	Audio Filter Setting	40	0 - 63	-
30	Audio Low Band	21	0 - 63	-
31	Audio High Band	26	0 - 63	-
32	Audio SAP VCO	45	0 - 63	-
33	PIP Comb D/A Level	67	0 - 127	Activates PIP window. (for sets with PIP.)
34	PIP Contrast	100	0 - 127	Activates PIP window. (for sets with PIP.)
35	PIP CVBS Coarse Tint	4	0 - 7	Activates PIP window. (for sets with PIP.)
36	PIP CVBS Fine Tint	135	0 - 255	Activates PIP window. (for sets with PIP.)
37	PIP CVBS Saturation	60	0 - 127	Activates PIP window. (for sets with PIP.)
38	PIP S-Video Coarse Tint	4	0 - 7	Activates PIP window. (for sets with PIP.)
39	PIP S-Video Fine Tint	135	0 - 255	Activates PIP window. (for sets with PIP.)
40	PIP S-Video Saturation	60	0 - 127	Activates PIP window. (for sets with PIP.)
41	PIP Brightness	15	0 - 31	Activates PIP window. (for sets with PIP.)
42	PIP BP Clamp Adjustment	247	-	This data is for reading only. Do not change.
43	Gemstar Horizontal OSD Position	141	73 - 185	-
44	Gemstar Vertical OSD Position	63	10 - 160	-
45	Gemstar PIP Horizontal Position	40	5 - 80	-
46	Gemstar PIP Vertical Position	43	20 - 100	-
47	Gemstar PIP Window Vertical Size	3	0 - 13	-

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PARTS LIST

Item No.	Type No.	Mfr. Part No.	NTE Part No.
DA03	-	237523	-
DA04	-	226463	-
DA501, 02	-	248798	-
DF01	-	155276	NTE116
DF02	-	261158	-
DL01	-	176296	NTE552
# **DL02**	-	140971	NTE558
DL03	-	242907	-
DL05	-	241304	-
DL06	-	176296	NTE552
DL07	-	207878	NTE519
DL08	-	243636	-
# **DL90**	-	157301	NTE177
# **DL92**	-	159429	NTE5019T1
# **DP01**	-	214649	NTE5331
DP06	-	232221	-
DP22	-	198589	NTE519
DP26	-	139706	NTE177
# **DP30**	-	244224	-
DP31	-	198589	NTE519
DP350	-	155276	NTE116
DP40	-	139706	NTE177
DP57	-	198589	NTE519
DP63	-	258173	-
DP71	-	198589	NTE519
DP75	-	176296	NTE552
DP80	-	243636	-
DP85	-	217306	-
DP86	-	215488	NTE136A
DR01	-	198589	NTE519
DR01A	-	215488	-
DR02	-	220637	NTE142A
DR03	-	215488	NTE136A
DR04, 05, 06	-	198589	NTE519
DR11	-	257862	-
DR502, 04	-	248798	-
DU01, 02	-	244870	-
DU04	-	257783	-
DU20, 21	-	230757	-
DU50, 51	-	230757	-
DU60, 61	-	230757	-
DV03	-	244870	-
DV05	-	198589	NTE519
DV501	-	248798	-
DV502	-	232710	-
DY01 Thru			
DY13	-	220638	NTE5014A
DY16, 17	-	220638	NTE5014A
DY501 Thru			
DY504	-	232710	-
IA01	UPC1851BCU	256831	-
IA02	MC3403N	241785	NTE987
IA03	TDA7263	215526	-
IF01	-	232109	NTE1788
IL81	LM358WN	254775	-
# **IP01**	-	257786	-
IP350	-	241752	-
IP360	-	194567	-
IP50	-	231525	-
IR02	-	258098	-
IU01	-	257787	-
# **IV01**	-	257841	-
IV02	-	194567	-
IV03	-	257829	-
IY01	CXA2089S	257802	-
IY03	TC90A49P	257833	-
IY04		237474	-
IY06	HEF4052BT	256937	NTE4052BT
IY07, 08	-	257832	-
IY09	-	257831	-
TA501	-	215495	-
TA511	-	206088	NTE2414
TI501	-	219348	NTE2409
TI502, 05, 06	-	219349	NTE2408
TL01	-	146851	NTE287
# **TL02**	-	237470	-
TL502	-	215495	-
# **TL502A**	-	147665	NTE159
TL82	-	217309	NTE261
# **TL902**	-	215496	-
TP20	-	244223	-
TP22	-	232218	-
# **TP23**	-	147665	NTE159
TP340	-	243955	-
TP360	-	257827	-
# **TP524**	-	215496	-
TP531, 52, 53, 60	-	215495	-
TP571	-	219412	-
TP80	-	177788	NTE31
TR501	-	215496	-
TR502	-	215495	-
TR503, 04	-	215496	-
TR505, 06	-	215495	-
TR511	-	215496	-
TR512	-	215495	-
TR521	-	215496	-

PARTS LIST continued

Item No.	Type No.	Mfr. Part No.	NTE Part No.
TR523	-	215495	-
TV503, 04	-	215496	-
TY500	-	215495	-
TY501, 02	-	215496	-
TY503, 04	-	215495	-
TY505, 06	-	215496	-

Item No.	Function/Rating	Mfr. Part No.	Notes
BAV03	Jack	257874	Assembly
BFA02	Jack	257785	Headphone
BR201	Socket	251884	G-Link
# **BU05**	Socket	233120	CRT
BY03	Jack	245283	Assembly
BY04	Jack	239389	Assembly
BY05	Jack	239389	Assembly
BY06	Jack	257843	Assembly
BY07	Jack	238963	SVHS
# **CA46**	1000µF 20% 25V	232348	-
CA512, 13	22pF 5% 50V NPO	194903	-
# **CA57, 58**	1000µF 20% 16V	178835	-
# **CA60**	1000µF 20% 25V	232348	-
# **CF02**	3300µF 20% 25V	227913	-
CH510, 11	39pF 5% 50V NPO	202905	-
CH519	100pF 5% 50V NPO	193340	-
# **CH58**	220µF 20% 50V	243789	-
CI503	47pF 5% 50V NPO	210689	-
CI506	330pF 5% 50V NPO	205227	-
CI509	.0022 5% 50V NPO	232616	-
CI512	100pF 10% 50V NPO	195695	-
CI516	39pF 5% 50V NPO	202905	-
CI520	.0022 5% 50V NPO	232616	-
CI546	47pF 5% 50V NPO	210689	-
CI560	33pF 5% 50V NPO	194911	-
# **CL05**	.0047 10% 250V	142765	-
# **CL06**	470pF 5% 2kV	227068	-
CL10	15pF 1% 250V NPO	223899	-
# **CL12**	.0168 3.5% 1.6kV	237355	-
# **CL13**	.36 5% 250V	198567	-
# **CL14**	2.2µF 20% 200V	247673	-
# **CL21**	.033 5% 400V	257784	-
CL22	680pF 20% 1kV	190538	-
CL23	.01 20% 1kV	137583	-
CL501, 03	470pF 5% 50V NPO	214732	-
# **CP01**	.22 20% 275VAC	-	-
	.22 20% 125VAC	231451	-
# **CP02**	.1 20% 250VAC	-	-
	.1 20% 125VAC	229322	-

Item No.	Function/Rating	Mfr. Part No.	Notes
# **CP03** Thru			
# **CP06**	680pF 20% 1kV	190538	-
# **CP08**	680µF 20% 200V	190560	-
# **CP10**	.0011 1.6kV	244208	-
# **CP11**	.0168 1.6kV	237355	-
# **CP15, 16**	.01 20% 250VAC	252973	-
# **CP18**	470pF 120VAC	250102	-
# **CP350**	4700µF 20% 25V	239388	-
CP580	.0022 5% 50V NPO	232616	-
CP63	680pF 20% 1kV	190538	-
# **CP64, 65**	3300µF 20% 25V	227913	-
CP75	680pF 20% 1kV	190538	-
# **CP80**	100µF 20% 250V	218374	-
# **CP83**	33µF 5% 200V	217299	-
# **CP85**	100µF 20% 63V	237425	-
# **CP86**	.01 10% 50V	240934	-
CP87	.0022 2kV	227078	-
# **CR12**	22µF 20% 16V	257794	-
CR502	120pF 5% 50V NPO	194902	-
CR505, 06	220pF 5% 50V NPO	225541	-
CU01	.01 3kV	257795	-
# **CU03, 06**	10µF 20% 250V	233809	-
CU505	220pF 5% 50V NPO	225541	-
# **CV25**	1800µF 20% 35V	257826	-
CV507	.0022 5% 50V NPO	232616	-
CV533	100pF 5% 50V NPO	193340	-
CV534, 44	47pF 5% 50V NPO	210689	-
CV545	100pF 5% 50V NPO	193340	-
CV558	47pF 5% 50V NPO	210689	-
CV559	12pF 5% 50V NPO	242262	-
CY525, 26	10pF 1% 50V NPO	197602	-
CY536	10pF 1% 50V NPO	197602	-
CY537	62pF 5% 50V NPO	214031	-
CY538	33pF 5% 50V N705	200546	-
CY539	100pF 5% 50V NPO	193340	-
CY546	180pF 5% 50V NPO	211039	-
CY552	10pF 1% 50V NPO	197602	-
CY566	180pF 5% 50V NPO	211039	-
CY569 Thru			
CY572	47pF 5% 50V NPO	210689	-
CY573, 74	10pF 1% 50V NPO	197602	-
# **DY1** (1)	Yoke	-	Horiz 1.5mH, Vert 20.5mH
# **FP01**	Fuse	175425	5Amp, 125V
# **FP341, 60**	Protector	245061	IC
IR11	Receiver	251320	IR
LH10	Ferrite Bead	226467	-
LH11	100µH	160186	-
LI01	22µH	248802	-

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PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes
LI03	15µH	197613	-
LI06, 07, 08	100µH	160186	-
# **LL01**	Horizontal Drive	215541	-
# **LL01A**	Degaussing	258017	-
LL02	Ferrite Bead	161237	-
# **LL03**	Horizontal Linearity	257157	-
LL04	4µH	215505	-
# **LL05** (2)	Horizontal Output	257811	-
LL06, 07	Ferrite Bead	232765	-
LL70	Ferrite Bead	226467	-
LL81	430µH	258171	-
	2700µH	253701	-
LL82	430µH	258171	-
# **LP02**	Line Filter	190507	-
# **LP03**	Power	244228	-
LP20	Ferrite Bead	226467	-
LP350	27µH	190017	-
LP61, 62	Ferrite Bead	237504	-
LP63	Ferrite Bead	226467	-
LP81, 82	Ferrite Bead	237504	-
LP83	22µH	215504	-
LP85	47µH	244222	-
LR01	Ferrite Bead	226467	-
LV01	Ferrite Bead	215547	-
LV05	180µH	257869	-
LY01 Thru			
LY06	10µH	244900	-
LY07	22µH	248802	-
LY08	22µH	248802	-
LY09	Ferrite Bead	235858	-
LY10	10µH	244900	-
LY11	22µH	244901	-
NH01	Tuner	248782	CTF5800
# **PW20**	Line Cord	257849	AC, Polarized
QI01	Filter	245046	SAW
QI02	Filter	219313	4.5MHz
QI03	Trap	219314	4.5MHz
QV01	Crystal	161235	3.58MHz
RA49	3.9 5% 3W	257868	-
RA537	107 1% 1/10W	257790	-
RA548	16.5K 1% 1/10W	257865	-
# **RF06**	13 5% 1W	231508	-
# **RF07**	1.5 5% 2W	237441	-
RF11	Network	215499	-
# **RL01**	15K 5% 1W	190557	-
# **RL02**	47 5% 1/2W	241321	-
RL05	2000 5% 3W	251832	-
# **RL20**	820 5% 1W	175349	-

Item No.	Function/Rating	Mfr. Part No.	Notes
# **RL22**	10 20% 1/2W	241261	-
# **RL24**	4.3 5% 3W	261409	-
# **RL26**	27K 10% 1/2W	238958	-
RL27	3320 1% 1/4W	257867	-
RL526	910 2% 1/10W	197627	-
RL599	15K 1% 1/10W	215198	-
# **RL70**	2700 5% 1/4W	210231	-
# **RL82**	100 5% 1/4W	198667	-
RL83	6800 5% 1/4W	220662	-
# **RL88**	1000 5% 1/4W	237444	-
# **RL90**	100 5% 1/4W	198667	-
RL92	27.4K 1% 1/4W	151883	-
RL93	39.2K 1% 1/4W	190469	-
# **RP02**	PTC	207768	-
# **RP03**	160 5% 7W	227958	-
# **RP05**	47K 5% 3W	232213	-
# **RP06**	6800 5% 1/2W	179248	-
# **RP15**	2.7M 20% 1/2W	217662	-
# **RP16**	120K 20% 1/2W	238903	-
# **RP20**	.1 5% 3W	244215	-
# **RP21**	43 5% 1/4W	244214	-
# **RP23**	2000 5% 1/4W	175321	-
# **RP31**	750 5% 1/4W	179317	-
RP340	3.9 5% 3W	257868	-
# **RP350**	3.3 5% 2W	223680	-
RP363	3.9 5% 3W	257868	-
# **RP38**	68 5% 1/4W	175039	-
RP531	680 2% 1/10W	195939	-
# **RP54**	2800 .1% 1/4W	244217	-
RP558	37.4K 1% 1/10W	215215	-
# **RP56**	143K .1% 1/4W	244216	-
RP80	33K 5% 3W	243805	-
RR511	27K 2% 1/10W	205245	-
RR563	64.9K 1% 1/10W	247691	-
RR564	100K 1% 1/10W	215221	-
RR567	27K 2% 1/10W	205245	-
# **RU01**	1500 20% 1/2W	244871	-
# **RU03**	100 5% 1/2W	257791	-
RV50	220 2% 1/4W	175324	-
RV518	680 2% 1/10W	195939	-
RY92	220 2% 1/4W	175324	-
SK11	Switch	257860	Power
SK12	Switch	257860	Volume Up
SK13	Switch	257860	Volume Down
SK14	Switch	257860	Channel Up
SK15	Switch	257860	Channel Down
SK16	Switch	257860	Menu
# **SP01**	Relay	190490	Degaussing

PARTS LIST continued

Item No.	Function/Rating	Mfr. Part No.	Notes
SP1, 2	Speaker	253674	160mm X 80mm, 8 Ohms, 12W
# **V1**	CRT	6QCP893001	HA68QCP893X001
#	Fuse Holder	176642	For FP01 (2 Used)
	PC Board	258157	CRT
	PC Board	257852	E-W Correction
	PC Board	258161	Front A/V
	PC Board	258159	FPA
	PC Board	258160	FPA Adapter
	PC Board	257871	Gemstar 4 Module
	PC Board	257837	Video/Comb Filter
	PC Board	257851	VPort Adapter
	Transmitter		257217 Remote, RCR160TCM1

 # For SAFETY use only equivalent replacement part.

(1) Bonded part of CRT.

(2) Screen and focus controls are part of LL05.

Important Parts Information

- **Parts not listed in the parts list are commonly available at your local electronics parts retailer.**
- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors.

- NTE Electronics, Inc. (NTE)
- Sencore, Inc.

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